LEVEL

PROCEEDINGS

RESOURCE SHARING II

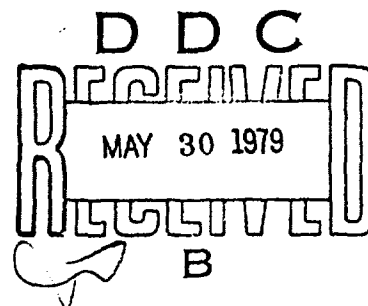# 22nd MILITARY LIBRARIANS WORKSHOP

Martha C. Adamson, Editor

January 1979

Hosted by
Technical Library

AIR FORCE WEAPONS LABORATORY
Air Force Systems Command
Kirtland Air Force Base, NM 87117

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The 22d Military Librarians Workshop was hosted by the Air Force Weapons Library from 31 Oct to 2 Nov 1978 and held at the Albuquerque Convention Center. In attendance were 150 selected military librarians from around the world who continued the discussion of resource sharing begun at the 21st Military Librarians Workshop the previous year.

The 22d Military Librarians Workshop had a decidedly practical emphasis. Among the contributions included here are advice on getting full value from network

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membership, measuring and evaluating library services, starting an automation project, and predicting the impact of online commercial information systems. Checklists and bibliographies are provided throughout. The recently produced "Census of Special Resources, a Registry of Locally Developed Specialized Tools for Military Libraries" appears as an appendix.

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Contents

22nd MILITARY LIBRARIANS WORKSHOP

31 October - 2 November 1978
Air Force Weapons Laboratory

Military Librarians Workshop Executive Board

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Stanley Kalkus, Coordinator of Navy Libraries, Chmn.

Introduction

The speakers and workshop participants whose contributions appear here deserve thanks from all of us. Recognizing that the information and guidance found here is most valuable if promptly disseminated, they graciously allowed themselves to be hurried to press. There was not a prima donna among them-- no lingering over a turn of phrase, no reluctance to let go the final draft. I am convinced that no proceedings editor has had to do less cajoling, pleading, or threatening than I, for which I am grateful.

Workshop attendees will recognize and, I hope, welcome the papers which grew out of the presentations made at the general sessions. I would like to caution them not to overlook some of the fine and valuable papers which were presented to task groups, and which are also included here.

These proceedings appear in (we hope) timely fashion due to the cooperation of Georgiana Hillyer and my colleagues at the Technical Library who alternately proofread, tiptoed, and covered for me during the last month.

Martha C. Adamson
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3

GOALS OF RESOURCE SHARING

Jessica Rich
Chief Librarian
HQ Space and Missile Test Center

In an overly inclusive statement, the introduction to the American Library
Association's Intellectual Freedom Manual asserts that we have the "right to
unrestricted access to all information and ideas regardless of the medium of
communication used."[1] This obligates all librarians to more than they can
actually provide, since the accelerated momentum of daily events has already
made cumulative demands upon our libraries which we, as librarians, cannot
entirely meet, and these demands have made pointedly clear that we can no longer
be independent institutions having merely local responsibilities and claiming
merely local support. Indeed, we are persistently moving farther and farther
away from self-sufficiency and are becoming more dependent upon the services of
external bodies--public and private, state and federal, domestic and foreign--
without which costs would further accelerate and our services lessen.

The main reason for this dependence exists in the sheer mass of new infor-
mation continuously pouring out from our educational and research institutions
and the compounded verbiage issued by the Federal Government. This information,
which is requisite for the increasingly complex activities of today's society,
is beyond the capabilities of a single, individual library to acquire, organize,
store, search, and make available for service. In fact, for each and every
library, even the largest, the hope of adequately supplying its identified
user groups has been greatly constrained by the simultaneous inflation of the
quantity of materials and the all too familiar ghosts which haunt us--cost,
cost, cost.

According to the National Advisory Commission on Libraries,[2] there are
other reasons why libraries can less attempt to serve as self-sufficient
entities but must more and more derive strength from resource sharing among

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[1]Office for Intellectual Freedom of the American Library Association,
Intellectual Freedom Manual, ALA, 1974

[2]National Advisory Commission on Libraries, Library Services for the Nation's
Needs: Toward Fulfillment of a National Policy, July, 1968

many institutions. One of these is the increasing mobility both of people, as those of us who serve the military well know, and of industry—a mobility that tends not only to diversify, but also to intensify the demands upon local libraries for specialized materials; how often we've heard, "but Library X has these sources. Why don't you?" Another reason is the enormous increase in personnel costs that all service organizations, including libraries, are forced to sustain, costs that compel them to substitute the less trained for the professional, to substitute mechanism and automation for manual operations, ad infinitum. I am not saying that automation is not important and can't help us, but it is not the answer to all our problems. Personal interaction is still an important part of good service.

Since we really have already admitted that we are not autonomous and need the resources of many, we must strive to collectively eliminate all those barriers to the free flow of information. But before we can admit to any complete problem solving strategem, we should stand back and appraise the role of our libraries and the ultimate goal of service. The National Advisory Commission on Libraries recommends the following objectives for overcoming current inadequacies:

> Provide adequate library and informational services for formal education at all levels

> Provide adequate library and informational services for the public at large

> Provide materials to support research in all fields at all levels.

> Provide adequate bibliographic access to the nation's research and information resources

> Provide adequate physical access to required materials or their texts throughout the nation

> Provide adequate trained personnel for the varied and changing demands of librarianship[3]

To satisfy these objectives, which can only be met by sharing our resources, the goals according to Fussler are:

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[3]National Advisory Commission on Libraries, op. cit., various pages

1. To improve the quality or to extend the absolute body of resources available;

2. In some manner to improve the scope, quality, or assurance of access for many users; and

3. To improve the present cost-effectiveness ratios as they relate to both aggregate and local resource availability[4]

Richard de Gennaro in "Austerity, Technology and Resource Sharing" concludes by saying, "the time has come to shift emphasis away from holdings and size to access and service. More realistic concepts of collection building will have to be adopted, and new patterns of services will have to be devised. The urgent task of developing effective means of library resource sharing has two major components of equal importance. One is to increase the total library resources available, and the other is to improve the organizational and technical mechanisms for gaining access to them..."[5] not only through computerized networks but also through the creation of a new and improved resource center.

I realize that the preceding is rather broad and offers no concrete solutions, and that we probably need a more realistic set of goals, including especially more selective policies designed to meet our own actual needs, in our own particular situations, for our own particular users; but because our libraries and information centers are not developing according to any national plan yet and are wasting men, money, and materials through fragmentation and duplication of effort, a new philosophy of library and information service is needed, one based on a common sense of direction and purpose and a commitment to a national cooperative action.

The final report to the National Commission for Libraries and Information Science, Resources and Bibliographic Support for a Nationwide Library Program by WESTAT, Inc., recommends that rational development of a nation-wide program for resource sharing requires:

1. Cooperative collection development. Materials must be held somewhere if access is to be provided, and this requires coordinated acquisitions.

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[4]Fussler, Herman H., Research Libraries and Technology, Chicago, IL:University of Chicago Press, 1973, p.34

[5]de Gennaro, Richard, "Austerity, Technology, and Resource Sharing: Research Libraries Face the Future," Library Journal, May 15, 1975, pp. 917-923

2. <u>Bibliographic access to materials</u>. If needed information is to be obtained, it must be possible:
    a. to know that the information exists in recorded form.
    b. to know which collection holds the needed item.
    c. to locate the item within a designated collection.
Current wide variations in bibliographic description inhibit this exchange, since the same item may be differently identified in different libraries and bibliographies. A prime requisite of effective resource sharing, then, is a standard bibliographic record, utilized consistently at all institutions cooperating in the sharing program.

3. <u>Channels of communications</u>. Methods of communication must be adequate to permit rapid identification of materials and their location as well as transmission of requests for delivery of materials. Channels must be structured to insure access to the resource sharing program at all levels of the information community.

4. <u>Delivery of materials</u>. Once identified and located, materials must be made physically available to users.

5. <u>Compensation to lending libraries</u>. Both borrowing and lending libraries should benefit from participation in a resource sharing program, and designated libraries should receive some compensation for making their resources available.

6. <u>Education in concepts and use of the program</u>. Users must be made aware of the program and its possible services to them. Library staffs must also be educated to new concepts in library services, as well as trained to operate within the new systems provided.[6]

This report goes on to give further goals and objectives aimed at regional and local levels, such as the establishment of regional facilities and programs for acquisition, cataloging and technical processing support. Through such a system, every book would be cataloged only once and the cataloging would be made rapidly available to every library. It would give us a logical base for effective decisions. It would provide adequate organization of services in a particular area and beyond that particular region. Research and development in library technology would be performed and readily available.

These goals, again, were aimed at the establishment of a national library network, but if we don't aim high, we will all continue to go in too many directions, and still waste our precious time and resources.

It would be nearly impossible to give any kind of synopsis, let alone discuss in detail all the studies and recommendations relative to the directions

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[6]National Commission for Libraries and Information Science, <u>Resources and Bibliographic Support for a Nationwide Library Program</u>, [Vernon E. Palmour, Marcia C. Bellassai, Nancy K. Roderer, WESTAT, Inc., Rockville, Md., August 1974] GPO.

toward which we should aim, let alone mention what has already evolved. But, if we take the goals aimed for at a national level, we can certainly adjust them to work at a local level. Therefore, the challenge now is to use what has been learned from the programs being tried, to redirect the regular programs of our libraries, to loosen red tape, and to ensure the freest possible access to resources consistent with local needs.

I could continue to give step by step what others feel are goals of resource sharing, what we should do, but when you step back and examine what we are striving for, it is simply to eliminate all barriers to the free flow of information.

GOALS OF RESOURCE SHARING

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OCLC AND NETWORKS

David Brunell
Bibliographic Center for Research

In one of the livelier sessions on networking at the last ALA Convention, Ray DeBuse, director of the Washington Library Network, defined library cooperation as "an unnatural act occasionally committed by librarians." Taking this definition a bit further, we can say that today organizations like WLN have come close to making an unnatural act natural. Indeed, in the decade since online resource sharing began in this country, the combination of online technology and network organization has resulted in dramatic changes in the day-to-day operation of thousands of libraries across the country.

These changes are most obvious in the technical services areas, where work flow patterns and practices have been radically altered through the use of various online bibliographic utilities such as OCLC, BALLOTS, and the WLN system. Even libraries which are not directly using these utilities often utilize the by-products of the systems, often without realizing it. For instance, the monthly catalog of government documents is printed from a magnetic computer tape input at OCLC, as are the state locator files utilized in many states to facilitate interlibrary loan transactions. While the use of online bibliographic systems offers individual libraries the potential for cost avoidance and increased efficiency, such results are by no means guaranteed, and to utilize the system effectively, library administrators must successfully deal with a bewildering array of new problems arising out of their interface with a complex computer system and the bureaucracy that controls that system.

The 17 regional networks in the country have played a key role in the development of the online bibliographic systems, particularly the OCLC system, because they offer a number of services to help libraries cope with these problems. The crucial role that the network plays in the individual library's successful adaptation to the OCLC system and in post-installation support of the system means that library administrators need to take a close, critical look at the services provided by networks, and to carefully analyze how they can best use those services. This is particularly true in light of the fact that most network personnel will readily admit that very few of their member libraries take full advantage of the network's resources.

To utilize network resources, a librarian must first be aware of what resources exist, and that is no easy task. Regional networks vary dramatically in the types of services they offer at any particular time, and there is no one source of up-to-date information on the various regional networks' services. Simply keeping up with one's own network can be a problem for a harassed administrator in the midst of conversion to an online technical services system. However, librarians should be aware of the sorts of services offered by networks other than their own, since there is a growing trend toward cooperation between networks, and the special programs developed by one organization may actually be available to member libraries of other regional networks.

Networks typically offer the following types of services to libraries who have decided to use one of the online technical services systems:

1. They offer negotiated group contracts for system use and telecommunications. There is little network cooperation possible here, although Fedlink and BCR are currently engaged in a pilot project to share dedicated telecommunications lines.

2. Networks also offer pre-installation planning, profile advice, and initial training on the system. All three services are obviously crucial to an efficient use of the system. The creation of a profile configuration that matches the basic outline of your current cataloging practices, but also makes extensive use of the automated features of online cataloging is particularly important, and is an area where network advice is often overlooked. There is a growing trend toward cooperative agreements between networks on training programs, most notably between BCR and Fedlink, although the other western networks have recently begun negotiations in this area.

3. Practices differ widely among the networks in areas like billing and troubleshooting. Networks will provide estimates of probable expenses based on the experiences of other member libraries, and these estimates can be very helpful.

4. Networks frequently offer advanced training, planning and documentation. Online bibliographic systems are developing at a tremendous rate, and keeping up with the latest changes in the systems is a necessary, but extremely time consuming task. The networks have been particularly successful in developing documentation packets on system use, and there is a good deal of cooperation at this level, including the sharing of training programs and materials, cooperative workshops, etc.

5. Lastly, most networks carry on evaluative studies of systems aimed
at maintaining quality control of the material entering the data base, as well
as advising the individual library on possible inefficiencies in its
utilization of the data base. OCLC has developed the Internetwork Quality
Control Council as a mechanism to coordinate network efforts in this area.

How can an individual library make full utilization of the services of
the networks? First, administrators should make a habit of sifting through
all network communications. Don't leave this up to the technical services
staff. Secondly, plan to attend as many workshops and user group meetings as
possible. They tend to be a relatively cheap way to get the latest information
on the system and to pick up information on how other peer libraries are
utilizing the system. Thirdly, before a person from your institution attends
a workshop, construct a list of specific questions which people in your
organization need answers to. Then make sure that they are answered at the
workshop. Workshops are also a good place to buttonhole network personnel
and get more detailed information on how your own operation could be improved.
In fact, they are usually so jet-lagged that they will tell you anything you
ask about the innermost workings of the network itself. Now, so much material
is presented at one of these workshops that you will never assimilate it all.
So fourthly, don't hesitate to write or call the network about any specific
problem you are having. Network advice is free and often very valuable. And
in fact, many of the most significant changes in systems operation stem from
user complaints and suggestions which reach the data base providers through
just these channels. Lastly, become involved in the network itself. You can
do this through advisory committees, quality control groups, and so forth.
This is a significant professional activity which benefits you both personally
and professionally. It is also of great value to your library, since it puts
you in touch with future changes in the system and new forms of system use.

Remember, online systems offer the potential for cost savings and cost
avoidance, but to fully realize the system's potential, you must fully exploit
network resources.

FEDERAL LIBRARY COMMITTEE UPDATE

Joseph Ford
Federal Library Committee

Where Jessica presented a philosophical approach to resource sharing, and David had some practical advice and some how-to-do-it information, I am going to do a point-by-point review, an FLC update for the last year. Fortunately, as we in the federal sector know, a new fiscal year is just barely on us, and I am leaning heavily on our annual report, the FY 78 Annual Report of the Federal Library Committee.

As most of you know, the federal library committee was chartered in 1965 by the then Librarian of Congress, Quincy Mumford, and some colleagues and counterparts in the old Bureau of the Budget, now the Office of Management and Budget. The intent was and has been for the last 13 years for the Federal Library Committee to act as a coordinating, resource sharing, and cooperative committee between federal agencies. Its success or failure in that is for you to judge by looking at what we have done. I am going to review just briefly some of the things we have done in the last year.

First and foremost from my point of view is that the Federal Library Committee and its Federal Library and Information Network, FEDLINK, have grown from approximately 80 libraries a year ago to 167 libraries cooperating on FEDLINK and OCLC projects. Those of you who are FEDLINK members know that we have doubled in size in the last year. That has been, as you can imagine, an enormous load on the staff. It has led to the addition to the staff of Miss Lucinda Leonard, who came from the Library of Congress' MARC Development Office, where she was head of user support. She brings ten years of library automation experience, a masters degree in business administration, and a masters in library science to our office. This is like putting a concrete footing down for us. We now have a real team player at the head of the Federal Library Information Network. We are in the process of hiring a secretary/clerical assistant, and we will be announcing in the not too distant future a new FEDLINK position, an OCLC Network Serials Librarian. If any of you know of or are experienced OCLC serials librarians who want to work in Washington, D.C., I suggest you make your interest known to us, and we will send you a copy of the position description. So things are booming with FEDLINK.

Now FEDLINK is what I would call a cooperative activity. It has on-going responsibilities for profiling, telecommunications, budgeting, accounting,

troubleshooting--all the things that are the responsibility of our organization. We do, however, also have a number of projects (rather than cooperative activities) which are not on-going responsibilities, but are of fairly short duration. I'd like to mention in that vein the slow scan television project that has been undertaken. It is funded in part by a grant from the National Science Foundation and in part by cooperating agencies. Under this program, twelve federal agencies acquired telefacsimile or slow scan television equipment on a lease or rental basis late in FY 78. They are going to be testing the possibility of resource sharing in the sense of actual point-to-point document delivery for interlibrary loan purposes.

Among other things, we have in the last year funded with some assistance the publication of a work done under contract by Informatics, Inc. called "Introduction to Minicomputers in Federal Libraries". By the way, the federal libraries part of that title is really a misnomer. The work acts partially as a textbook treatment and partially as a systems analysis and evaluation treatment of small scale machine operations in libraries.

Some of you may already have been part of the test group for this year's survey of federal libraries. The last survey was done in 1972; the present undertaking is for FY 78. The questionnaires, the survey instruments, are in preparation if they are not already in the mail. This survey will, among other things, result in a directory of federal libraries. Some of you may have felt the need to know who your colleagues are. You have been sorely tried by the lack of a comprehensive list of where the federal agencies have information centers and libraries. We expect that it will take some time to create the statistical tables resulting from the survey. On the other hand, the directory of federal libraries, we hope, will be available in a shorter time.

We are also engaged in planning a Federal Libraries Pre-White House Conference. As you know, the White House Conference on Libraries and Information Services is coming up, and in FY 79, we will be hosting a Pre-White House Conference for federal libraries, librarians, information specialists, and information managers who want their interests and wishes to be known and input to that White House Conference. Unfortunately, as you are probably also aware, travel money is sometimes at a premium, and there has not been any money made available for travel to the conference other than what can be raised from the individual participating agencies. If you are able to attend, you are absolutely welcome. Those of you who watch the federal library committee newsletter will see on-going announcements about this. If you are able to fund

14

your own travel, we would be most pleased to have you there. We expect that unless folks are able to come from out of town, a good part of the input for that conference will come from libraries in the Washington, D.C. area.

Well, one cooperative project which is in part a project and in part an activity is something that Dave Brunell mentioned, something that has been in the works for a long, long time called the Denver Pilot. The impetus for the Denver Pilot came out of FLC discussions about resource sharing in 1975 and 1976 with Fred Kilgore, OCLC, Inc., and Don Simpson of the Bibliographic Center for Research in Denver. There are, of course, all sorts of resources, and one of them might be a telecommunications line. Those of us in the federal sector who use OCLC enjoy GSA Telpak tariffs on those lines. This is rather cheaper than the line charge made to non-federal libraries. After a lengthy period of negotiation and some technical considerations about line configuration, the first BCR libraries came onto what was essentially a federal line in April of 1978. This was the first time that we know of that both federal libraries and non-federal libraries used one telecommunications direct line for access to a bibliographic utility. It became very obvious that the Denver Pilot was a victim of its own success. Line degradation occurred immediately as people began using this nice, cheap line. At the end of June and early July, the second GSA Telpak line was converted to both federal and non-federal users. Since that time, the Federal Library Committee, BCR, and OCLC have been sharing GSA discounted telecommunications to our mutual benefit. As Dave Brunell said, as a quid pro quo for this arrangement, BCR has agreed to act as a training and consulting organization for federal libraries in the Denver area. We are very pleased at how well that seems to be succeeding, and we expect that we will see more cooperative arrangements of that sort.

OCLC, of course, is a cooperative activity. It has been four or five years since the first telecommunications lines went into Washington, D.C. in February of 1974, a contract having been signed in June of 1973. There were eight libraries at the time who were actively interested. We shared a single telecommunications line for OCLC input. At this time, there are six telecom-munications lines. Sunday afternoon while puttering around the office, I saw a line configuration for eight lines, which is a doubling in the last fiscal year. This, of course, reflects the very large growth in the number of members that we have.

Another resource that I think we share, although you might not think of it
right away, is the human and organizational resource. An organization such as
FLC or the AMIGO Bibliographic Council or the Bibliographic Center for Research
finds that in undertaking one project and carrying it through to success, it has
created rising expectations among its members. We discovered that having been
able to successfully swing OCLC in the federal sector, we began to hear
inquiries about other online services.

These were not necessarily technical processing sorts of things, but
reference services. So in January of 1977, our first contract with BRS was
signed and six or seven libraries began searching BRS online. At the end of
FY 77, there were 23. At this time there are 56. And as soon as we can type
up our contracts and get them out to the folks who are interested in them, we'll
see that number go to about 70 federal libraries taking advantage of discounted
group-rate membership via the organizational resource of the federal library
and information network. We do preliminary contractual work, we do the very
simple interagency agreement, and make the services available to federal
libraries which wish to take advantage of them. In the same vein, in 1978 we
concluded—after a rather lengthy period of negotiation—a contract with
Lockheed Information Systems for Lockheed DIALOG. We now have about fifteen
or eighteen agencies using Lockheed DIALOG via a simple interagency agreement,
and enjoying discounted group-rate membership. Again, the number is going to
grow just as soon as we can get the contracts out. We have had preliminary
contacts with Systems Development Corp. for SDC's ORBIT, and if we can come
to terms with them, I believe we may see an SDC contract in this fiscal year.
We are also fairly close to signing a contract with Mead Data for its LEXIS
group of legal research services files, a very powerful group of full text
searchable legal files. We have also been involved for some time, as a result
of inquiries from a number of federal libraries, in a shared acquisitions
project, essentially a purchase order generating, in-process file and order-
purging vendor contact file based on either a Data General minicomputer or
PDP 11 minicomputer. This file will probably be handled by a commercial
vendor. We are working on a proposal which is being thrashed out with the
vendor, and we expect that some time in the not too distant future, you will see
a number of federal agencies, perhaps eight or ten at the outset, cooperating
on the project. So here is another bibliographic resource, essentially in-
process records for acquisitions purposes.

One thing I would like to mention once more is that any time two or more

of you want us to do something, we are more than pleased to assist in any way
we can. For example, in April of 1977, a group of three federal agencies in
Washington, the National Agricultural Library, the Environmental Protection
Agency, and the National Oceanographic and Atmospheric Administration, approached
us and asked us to assist them in preparing a request for proposals and
considering technical aspects of putting up a side-by-side serials file for
keyword search. Having worked with OCLC as you have, you know the
limitations of the Hash Key search code in comparison with the title search
capabilities of the commercial online vendors. Well, a request for proposals
was created, technical data gathered, and the request was put out on the street.
On the basis of the response to the proposal, a contract was awarded to BRS.
They've been hustling, and we now have approximately 45,000 serials records up
on BRS and available for public search. It is called the NAL Serials File
in the BRS literature and includes for public search just the NAL part of the
file. We have money available now, and we expect to be acquiring and loading
the Library of Congress' MARC S file and the OCLC-based CONSER file. We would
then be looking at on the order of 300,000 logical serials records available
for keyword, author, title, accession number, and standard technical report
number searching on a full text basis. We expect that this will provide a good
deal of support for reference and interlibrary loan services.

This paper was transcribed from a sound recording of Mr. Ford's presentation
to the Military Librarians Workshop on 31 October 1978. It has been reviewed
by Mr. Ford.

RESOURCE SHARING
KEYNOTE SPEECH TO THE 22ND ANNUAL MILITARY LIBRARIANS WORKSHOP

Paul Vassallo
Dean, General Library
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I suspect that the reason Georgiana Hillyer asked me to speak to you about
resource sharing is because of the experience we had in this state with the work
of the Task Force on a State-Wide Interlibrary Cooperative System for New Mexico.
It was tempting to speak of the conclusions and recommendations embodied in the
Task Force report, but I perceive this as an opportunity for me to reflect on
the lessons learned from that experience and share these with you. The basic
theme of my presentation. indeed, the basic theme underlying the conclusions
and recommendations of the Task Force report, is the concept of resource
sharing.

First of all, one must ask the question "why resource sharing?" In the
heyday of extensive federal spending in support of education during the 60's,
the problems facing libraries were much different. Then, we were primarily
concerned with controlling the unusual influx of library materials, with
discovering ways of not only eliminating but somehow managing mounting backlogs,
and with finding and training staff--professional and paraprofessional--to
process the materials. Those were the days of research libraries faced with
the task of determining what to keep of the mass of materials coming in on the
Library of Congress' PL 480 Program. Those were the days that provided the
impetus for the development of technology and cooperative cataloging programs
to help make the materials available. Those were also the days that provided
the impetus for the development of national standards to facilitate the
exchange of information. Those were the days that brought about the realization
that the search for information knows no boundaries, that an international
exchange of information must be based on the development and existence of
international standards. Thus, the problem was one of coping with a glut.

The problem of glut was not universal. While the availability of federal
funds served as a catalyst for some states and institutions to build major
research collections or to identify and reduce gaps in collections, in some of
the states and some of the institutions the availability of federal funds
was viewed as a substitute for local contributions or as a means to minimize
local support. An analysis of the acquisitions budgets of New Mexico's
academic libraries during the period of major library growth in the rest of the

country reveals a quasi-uniform lack of local commitment in the state. This
lack of support was exacerbated because the parent institutions chose to
initiate new instructional programs at the undergraduate and graduate levels, as
well as research programs. The lack of institutional commitment to centralized
library growth was tolerated by faculty and departments which used federal and
research funds to establish and enrich their own departmental reading rooms,
even though this was supposed to be against existing policies.

Thus, a vicious circle of lack of university concern and faculty demand,
combined   with libraries' passive and meek funding requests, resulted in
inadequacies which could only be brought to light by outside review. This
phenomenon was not limited to one institution in the state of New Mexico; it was
pervasive throughout the entire academic system.

While libraries became the major focus for academic institutions in most
states during the upswing of federal funding in the sixties, in 1969 a North
Central Association Accreditation Report for the University of New Mexico stated
that "the library is one of the weakest resources of the institution." The
reason is amply substantiated by the fact that the acquisitions budget for the
University of New Mexico Library for 1969/70 was only $256,000.

It is important here to compare the budget for books and serials at the
University of New Mexico for 1969/70 with those of neighboring states:

<div align="center">

Budget for Books and Serials
1969/70*

</div>

University of New Mexico	$ 256,000
University of Arizona	625,000
University of Colorado	952,000
University of Oklahoma	679,000
Oklahoma State University	448,000
University of Utah	1,004,000

*Association of Research Libraries, Academic
Library Statistics, 1969/70

The lack of commitment in New Mexico to library support was by no means
limited to academic institutions. A report issued in March 1970 by the
Arthur D. Little Co. entitled New Mexico's Library Resources: Present Status
and a Plan for the Future concluded that "those concerned about library service
in New Mexico are well aware that it currently falls far short of what is
needed."

Fortunately, the concerns expressed by outside review did not fall on deaf ears.

The major credit for the movement to rectify the problem, however, must go to the users of these libraries and not to the librarians or educators. The students in the state institutions of higher learning undertook an initiative which in 1972 resulted in legislation, and then ratification by the voters, of a five-year, ten million dollar bond issue which sought to upgrade the libraries in these institutions. This was to be the opportunity to launch the state into a new era of library service. The ten million dollar bond issue for support of academic libraries contributed to a significant improvement in the collections of the institutions of higher learning, thereby resulting in the increased availability of research materials in the state. However, the effect of the ten million dollars was significantly reduced during the five-year duration of the bond issue (fiscal years 1972/73 to 1977/78) because of an unusually high rate of inflation in library materials during this period. It was exacerbated by academic institutions which took advantage of bond funds to provide only minimal increases--and in a few cases actual decreases--in their local support for library materials.

For example, the University of New Mexico budget in fiscal 1972/73 for books and serials was $402,000. In the first three years of the availability of bond funds, it had been increased less than ten per cent, to $440,000 in fiscal 1975/76. The prices for books and serials in the same period had increased by more than fifty percent.

Thus, in spite of benefits derived from the academic library bond issue and an increased commitment at the state and local levels in support of public libraries, it is still a fact that the entire state of New Mexico has fewer titles available to its citizens than exist in the Denver-Boulder area.

Within this environment, it became fairly obvious that the only solution was to share existing resources. The technology developed to cope with the glut problem of the 60's also served to facilitate the evolution of the concept of resource sharing. It also contributed to the minimization and elimination of one of the major arguments against resource sharing. But more about this later.

The philosophy of resource sharing is based on the premise that it is uneconomical and impractical for each library to maintain completely independent overlapping collections. It became increasingly obvious that none could afford to meet the demands of an increasingly sophisticated user. These

increased demands, coupled with a decreasing purchasing power of available funds, made even the most independent-minded librarian see that "we can't go at it alone." The imbalance, however, between the haves, who inevitably become the net lenders, and the have-nots, who are the net borrowers, provided for a continued intransigence on the part of a very small minority. In the final analysis, however, it was accepted that as long as local user needs were not being disrupted, library materials could and should be viewed as a common resource and be made available to a state-wide constituency.

It was determined within New Mexico that agreements among institutions to extend existing interlibrary loan codes were needed. The only impediments to totally open access and loan to all citizens should be the need to

(1) preserve fragile, rare, or special materials,

(2) protect private or confidential documents, and

(3) insure adequate service to the local user population.

It was also determined that existing manual and automated interlibrary loan operations had not facilitated the adoption of the concept of resource sharing. It was concluded that the implementation of resource sharing could be accomplished only by the design of a total system dedicated to expanded interlibrary loan applications.

It was within this atmosphere that the New Mexico State Library Commission, at its meeting of April 15, 1977, approved a $10,000 grant for the purpose of establishing a Task Force to study the need for and benefits of a state-wide library system that would provide easy access to the cumulated holdings, location, and availability of materials in participating libraries and to respond to related needs of all interested New Mexico libraries.

In preparing this paper, I decided that rather than just give a historical presentation on the work of the task force, I would look on this as an opportunity to reflect on the approximately eighteen months of work leading to the creation of the Task Force, the work during its existence, the report emanating from that work, and the reactions to and results from that report. This was a good opportunity to analyze the processes that all those involved went through, the evolutions that occurred during this period. I say "evolutions" because there's really nothing revolutionary either about the concept, the processes, or the end result.

We now know that the pace by which the concept of resource sharing is implemented is not dependent on technology. There are many examples of the use of technology to bring about various degrees of acceptance of resource sharing.

The Task Force concluded that resource sharing could be achieved only if
four essential ingredients were present:

(1) A basic understanding of, and commitment to, the concept of resource
sharing,

(2) A series of agreements or compacts, entered into by participating
libraries, which define the conditions under which they make their
collections available to the total community and what the exceptions are
to this commitment,

(3) An electronic transmission system for the sharing of information
about desired materials and their availability, and

(4) A physical delivery system that ensures the most expeditious transfer
of materials to users and back to their holding libraries.

The Task Force reached these conclusions after many months of studies,
questionnaires, meetings, and state-wide deliberations. Yet the Task Force
could not have even been created were it not for one essential ingredient--
the existence of a spirit of cooperation. The assurance of continued
cooperation, in turn, was enhanced by participation, participation of _all_
interested parties in the planning. Thus, various factors had to be considered
in seeking to maintain a degree of receptivity that could contribute to the
process through constructive, and not destructive, criticism. Participation
in planning by all interested sectors was crucial in the selection and the
composition of the Task Force. A certain degree of legitimacy was provided
through the creation of the Task Force by the State Library Commission. It was
important, in the selection of members, to consider such factors as availability,
access to support services, willingness to take on this additional responsibi-
lity, flexibility, creativity, and recognition for leadership in the profession.
Considerable weight was given to such factors as geography--this was rather
difficult because of the huge distances between centers of concentrated library
activity and the need for frequent meetings. Yet it was important that no one
geographic area be dominant. It was also important to have all types and sizes
of libraries involved in the process of deliberation. It was important that
professional organizations be involved through the selection of members active
in a variety of such bodies. One cannot overstate the importance of the
selection of the consultant in such a program. It is crucial that the group
develop an immediate rapport with the consultant and vice versa; it is also
crucial that the consultant win the confidence of the group. It is essential,
of course, that the group be judicious in their selection of the chairman.

I can say that I could not have carried out my responsibilities as chairman of the Task Force were it not for the support of the university library faculty and staff, as well as the support of the University of New Mexico administration. One cannot underestimate the effort required to provide the essential logistical support for setting up meetings, preparation and reproduction of materials, mailings, and travel. These cannot be accomplished unless the chairman has access to a myriad of support services not normally available in small organizations.

Early on in the deliberations of the Task Force, it was determined that a continuous flow of information had to be maintained between it and the various constituencies. Thus a questionnaire mailed to institutions and individuals throughout the state provided a framework for the initial concept as well as eliciting information and attitudes from the respondents. Meetings of the Task Force were held on an almost weekly basis and specific assignments were made to members. Invitations were sent to the library community throughout the state to special meetings, such as the initial meeting with the consultant, a meeting on finance and one on governance. This provided an opportunity for the Task Force to feel the pulse of the community on very basic issues during rather than at the end of the process. Constant care, of course, must be given to queries from every source, since they indicate an interest which needs to be nurtured. These require speedy responses. An excellent mechanism for informing as well as acquiring information is for presentations to be made at all available meetings and conferences. These appearances should not be limited to the state, as enormous benefit can be derived from the reactions of those who would not be directly affected. They can be more objective and dispassionate in their analyses. It is also true that developments in one state may inevitably have an indirect impact on the region, and, therefore, it is important to keep interest alive in adjacent states.

As I noted earlier, this was not a revolutionary but an evolutionary process. Thus the Task Force built its analyses and recommendations on work that had already been done in the state. Individuals and institutions are more responsive to evolutionary systems that capitalize on what they have already done than on phoenixes that rise out of the ashes of others. This process, of course, has a greater possibility of success if it is geared to minimal tearing down of entrenched positions. It is much more difficult to acquire receptivity to a new system if it has to be superimposed on already-existing systems. The application of sophisticated technology in New Mexico institutions had not

23

reached either a very high level nor was it widespread throughout the state.
Thus, the vast majority of institutions did not have a major investment to
protect and could see that their own internal objectives for application of
existing technology were much more within reach if they were sought on a
multi-lateral basis.

Certain hypotheses require testing, and acceptance of conclusions is
usually much easier to acquire if recipients can identify with the experiences.
For example, it was determined very early in the deliberations of the Task Force
that the major test of any system is the degree of cooperation among its
participants. Was it possible for academic library "A" to make its collections
available to public library "Y" and under what conditions and exceptions was
this to be carried out? Thus, the University of New Mexico General Library
and the Albuquerque Public Library, on an experimental basis, entered into an
agreement for reciprocal borrowing and use of the collections. This compact
defined the conditions under which the collections were made available to the
total community and what the exceptions were to that commitment. The experiment
was needed to test basic concepts and identify areas needing resolution before
application on a state-wide basis. As in every other stage in the total
process, the initiation of this experiment was given state-wide publicity to
generate greater interest in cooperation.

After all the questionnaires have been tabulated, all the deliberations
resolved into a modicum of consensus, and some semblance of a structural order
determined, there comes the preparation of a report. The initial attempts at
coordinating the preparation of a report quickly showed what a dromedary the
the committee can produce in search of a horse. Thus, participation in the
preparation of a draft report became necessarily limited to a very small group,
essentially three individuals working very closely together. While ample
opportunity for participation and reaction had been given to all interested
individuals and institutions, it was essential that the preparation of the
final report follow a schedule and steps on a systematic basis. Thus, the
Task Force first issued a Preliminary Report, as well as an Executive Summary
of that report. The former was distributed to a state-wide audience of
librarians, educators, library trustees, and others who would have an interest
in the mechanics as well as the concept of the system being proposed. The
latter was distributed to a state-wide audience of legislators, city and county
officials, the news media, and others whose interest was determined to be
primarily in the concepts and general framework of the proposal. Here again,

24

in the entire process of the work of the Task Force, it was essential that
geographic factors be considered prior to the preparation of the Final Report.
Thus, a tour of the state was organized for the entire Task Force, including the
consultant. During one week, with the assistance of two chartered twin-engine
planes, the Task Force held hearings in Albuquerque, Santa Fe, Raton, Portales,
Hobbs, Las Cruces, and Gallup. The locations were chosen on the basis of
accessibility to an identifiable region of the state, the composition of the
population served, and flying time to permit offering one hearing in the
morning and one in the afternoon. The degree of success of this type of under-
taking is primarily based on the preparation prior to the visit. The local
coordinator plays a most important role in getting out local publicity to
attract interest, personal follow-up calls to key individuals to ensure
attendance, and the creation of an atmosphere conducive to dialogue and
constructive contributions to the final report. Great care was given to the
receiving and recording of reactions. No effort was wasted in "pressing the
flesh" and seeking local support for the effort yet to come. The concerns and
recommendations solicited at each location received a response in the manner
in which they affected the Final Report. In order to provide a final review of
the conclusions resulting from deliberations around the state, a plenary meeting
was held to discuss a draft of the Final Report, and recommendations from that
meeting were included in the final document. These last stages revealed that
absolutely nothing could be taken for granted and that one must be prepared for
surprises and be flexible enough to alter positions. The Final Report was also
given state-wide distribution.

The experience revealed that one must be prepared for anything. The Task
Force had expected that its recommendations would be taken up for implementation
by the State Library. However, due to a series of events and problems of
timing, the follow-up for implementation became the Task Force's responsibility.
This required the identification of the locus of power in the executive as well
as the legislative branches of state government. It made essential the
informing and involvement of individuals whose participation in the process had,
up to that point, been peripheral. In this came the crucial determination of
the key person to carry the banner in the legislative process, that is, the
sponsor. Once a bill was drafted, it was essential to touch base with local
constituencies to generate support from their representatives. The members of
key committees with review jurisdiction were identified and constituents
targeted to solicit their support. In this it was essential to identify local

benefits to be derived from the proposed project.

When all the work has been done, and every strategy carried out, there is just one last resort. Pray for divine revelation to descend on legislators. Apparently we did not pray hard enough, as the legislative response to a bill authorizing 1.5 million dollars for the initial stage of the system was to pass an allocation of $25,000 to enable the State Library to conduct a feasibility study. This, of course, could be viewed at best as an encouragement to refine what has already been presented. It could be viewed at worst as an expeditious way to seem responsive to concerned constituents without any actual commitment of substantial resources. My conclusion is that it falls someplace in the middle and that the efforts served as the beginning of a gestation period but that the outcome is still in doubt as to timing and eventual delivery.

In conclusion, this experience convinced me that in spite of all the problems that stand in the way, resource sharing is not only feasible and desirable, but essential. Resource sharing by libraries can serve as the catalyst to bring about other possibilities of institutional cooperation, reducing duplication of effort and giving those who pay their money's worth. Thus, libraries must take the initiative to achieve cooperation before they are forced to. A planned, programmatic approach to resource sharing can be much more effective than a panic-stricken response to a Proposition 13 and weather-vane politicians.

MEASUREMENT AND EVALUATION OF LIBRARY SERVICES

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When I am asked to speak to a group about measurement and evaluation of
library services, I am faced with a problem, because measurement and evaluation
of library services is rather a large field with wide ramifications. I never
know whether to speak in generalities, to try to give an overview, or to
concentrate on some particular aspect. Today, I've decided to give an overview.
What I want to do is to talk about what has been achieved in the field of
measurement and evaluation of library services in the last ten years--what
techniques have been developed and what techniques you may find applicable
in your institution. Unfortunately, I can do no more than mention a number of
techniques and put them in perspective. I limit myself to the last ten years
because most of the achievements in objective measurement and evaluation of
library services are from approximately the last ten or fifteen years.
The evaluation of library services is still in its infancy. The techniques
which have been developed have many limitations. We have not by any means
solved all the problems. There are many areas of library service in which no
reasonable evaluation technique has so far appeared.

Let me begin by trying to identify levels of evaluation. Basically, we can
evaluate a service of any kind--not just library service, but other kinds of
service--in terms of its effectiveness, its cost, and its benefit. Effective-
ness to me really means the degree to which the service satisfies the needs of
the users for whom the service is designed. So effectiveness in some sense
relates to user satisfaction. Cost is very obvious--how much in total resources
is invested in making this service available. And benefit has to do with the
impact of the service on the community served, the impact in any way in which we
can measure it, the benefit of having the service available as opposed to doing
without it. Also, we can relate some of these to each other. We can relate
cost and effectiveness. A measure of cost-effectiveness is really a measure of

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efficiency in the sense that cost-effectiveness is concerned with achieving a reasonable level of effectiveness, a level of user satisfaction, if you like, at minimum cost. I'll talk a little bit more about this later. Cost-benefit evaluation is concerned with the relationship of the cost of providing the service and the benefits of having it available. Cost-benefit studies are often related to justifying the existence of the service, that is, is the service justified by the impact it will have on the community?

You'll hear the terms macroevaluation and microevaluation bandied about. Macroevaluation is obviously a kind of gross evaluation. Macroevaluation simply tells us that an organization is operating at a particular level of service at a particular time. To give you an example, in most libraries, it would be important to know what the probabilities are that a user coming into the library looking for a particular item would find that document in the collection. Or, how likely is it that the library can deliver that document to the user? We undertake a study of the document delivery capability of the library at the macroevaluation level which would establish, for example, that a user walking into that library has, let's say, a 45% probability that the document he's looking for is owned by the library and is physically available to him at the time he needs it. Now, if we stop there, we have conducted a macroevaluation, but that on its own is of relatively little use. What we are really interested in is what we can do to improve the situation. And to improve the situation, we have to go beyond macroevaluation to what I call microevaluation, which is diagnostic. Now, we want to know in this particular case what the difference between the 45% success and the 55% failure is. What are the factors that produce this rather low rate of success in document delivery? The most important part of evaluation of any kind is diagnosis--how the system is performing now and what can be done at some future date to raise the performance level. Evaluation is a sterile exercise if it is not conducted with the objective of raising the performance of the organization evaluated.

For the purpose of evaluation, it is useful to look at the library, any kind of library, primarily as existing as an interface between two populations.

AVAILABLE ————————> LIBRARY ————————> USER
MATERIALS   INTERFACE   POPULATION

It is an interface between the population of users the library is intended to serve and the population of available materials, or information resources, if

you like. The function of that library is to bring these two populations together and to interface them as efficiently as possible. Now the measures of the success of the library in bringing these two populations together can be identified as a measure of accessibility and a measure of exposure-- accessibility of the materials to the users and exposure of the users to the materials. These are really two sides of the same coin. Accessibility of materials to users implies a rather passive information service in which the library does nothing, but the users come to the library and say, "I need material." It is the function of the library, then, to make the material accessible to the user. Accessibility implies something passive. We make materials available to users, but we wait for users to initiate action before we do anything.

Exposure, on the other hand, implies an active kind of information service such as SDI, in which the function of the library is to expose the users to materials likely to be helpful to them whether they like it or not, whether they asked for them or not. The interface role is implicit in both of these-- accessibility and exposure.

Some of you may have been exposed to a man called Ranganathan, one of the giants of library science in many ways. Well Ranganathan, besides being a classificationist, came up with something called the Five Laws of Library Science. The second law of library science which he propounded was "every reader his book" and the third law of library science was "every book its reader." Now "every reader his book" implies accessibility. The library ought to be able to provide any user any book or any other material at the time it is needed. "Every book its reader" implies exposure. There are people who will be interested in most things published, and exposing people to new material is a function of an efficient library.

For evaluation purposes, we are really concerned with measuring the extent to which the library maximizes the accessibility of materials and maximizes the exposure to materials. The cost-effectiveness goal is to maximize accessibility or exposure for every dollar expended. Cost-effectiveness has to do with allocation of resources in such a way that we buy the greatest level of accessibility/exposure with the resources available.

Continuing this interface idea a little longer, we can look at the library as an interface in a number of different ways.

INFORMATION CENTER INTERFACE

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                    ┌─────────────────────────┐
                    │        SELECTION        │
                    │      ACQUISITION        │
                    │      ORGANIZATION        │
                    │         CONTROL          │
                    │         STORAGE          │
MATERIALS<───────>  │        CATALOGING        │  <───────>USERS
                    │       ABSTRACTING        │
                    │         INDEXING         │
                    │    ON DEMAND SERVICES    │
                    │    UNSOLICITED SERVICES  │
                    └─────────────────────────┘
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One way is simply to say that if that rectangle there is a library and that
library is an interface between materials and users, we can look at that
interface in terms of the major functions libraries perform in a sequence
running from the materials to the users. The major thing that happens to the
universe of materials is that some of these materials are collected and
acquired by the library. From everything published and available, the library
chooses a smaller portion of those most likely to be of use to this particular
group of users. So selective acquisition from the universe of materials is
obviously one of the most important functions this library performs. And then
we have organization and control functions, including cataloging, abstracting,
and indexing--all aspects of accessibility. Finally we come to the services
the library provides to its users. I have simply classified these as on-demand
services, services which are brought into play when the user makes a request,
and unsolicited services like a notification service, booklists or SDI.

Another, more unconventional way to look at the library is shown here:

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                                                 UNIVERSE OF KNOWLEDGE
USER  OPEN SHELVES    STACKS    OFF-SITE STORAGE  --OTHER MATERIALS
                                                 --OTHER INFORMATION SOURCES
```

The users are at this end, and at the other end of the diagram is the whole
universe of information resources, published or unpublished. Now really you
can regard the function of the library as bringing closest to the users those
things which have the greatest probability of being used. This means that out
of the total universe of resources, the library selects a small fraction and
brings them into its four walls. These materials that we select out of the
total universe, this small fraction, presumably is the fraction which has the

highest probability of being of interest to the group which that particular
library serves. But also, even within the library, and particularly within a
large library, it is important that the materials actually acquired by the
library can be ordered according to their probable degree of use. For example,
in a university library you put on open access shelves in an undergraduate
collection the items which will most often be used. We put in controlled
access stacks the materials which are less likely to be used, and finally
relegate some things to an off-site storage facility. Material doesn't have to
be within the four walls of the library to be available. It is simply
accessible to the users at a different level of accessibility. Certainly in
1978 we cannot claim that the library's function ends at the limits of its

four walls. It just so happens that the library has chosen to bring certain
parts of the universe into these four walls. We can look at the library as
fulfilling its interface role by warehousing materials according to potential
use. Those materials having the highest probability of use are most accessible
and those materials having least probability of use are least accessible, but
nevertheless they are accessible in some sense. And this raises some
important evaluation questions, like: are the most used items in the
collection; are the items which are most likely to be used most accessible;
are they likely to be available on the shelf when needed; can they be found on
the shelf; and finally, if they are not in the collection, can they be obtained
in time to be useful to the user?

Now, all the services that libraries are involved in can be evaluated, at
least to a certain extent, but obviously the different services require
different evaluation criteria and evaluation methods. I choose to divide the
major services which libraries provide into two broad categories--document
delivery services and information retrieval services.

TECHNICAL SERVICES   PUBLIC SERVICES

TOOLS

DOCUMENT DELIVERY
--KNOWN ITEM
--BROWSING

INFORMATION RETRIEVAL
--FACTUAL
--LITERATURE SEARCH
  --RETROSPECTIVE
  --CURRENT AWARENESS

31
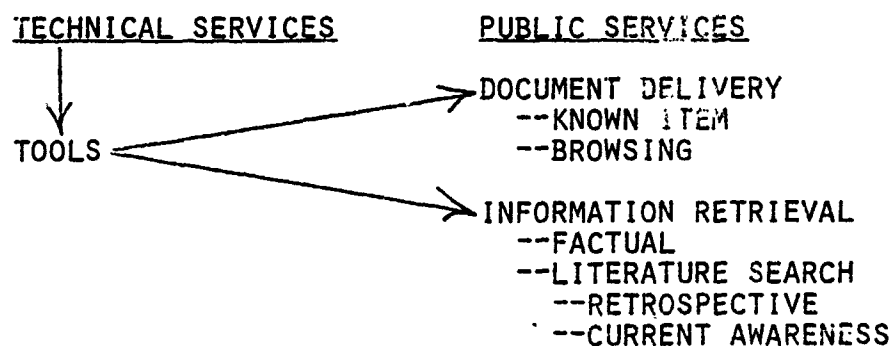
Document delivery services are of two kinds. "Known item" services refer to the ability of the library to provide to the user a particular item for which there is no substitute. And "browsing" describes the situation in which the user comes in to see what the library has in a particular subject area.

The information retrieval services are also of two major kinds. Factual information retrieval is that service in which the objective is to answer someone's questions with accuracy. The other major grouping is the literature search service, where there is no exact answer to the questions, but where one provides bibliographic citations or library materials related to a topic. These may be retrospective searches or for current awareness. All of these are subject to evaluation. Technical services also can be evaluated. Technical services can be regarded as producing tools which make public services possible, tools such as the catalog, shelf organization, and so on.

I would like to talk a little bit this morning about document delivery. I will talk about it from both effectiveness and cost-effectiveness points of view.

PUBLIC SERVICES

--% OF NEEDS SATISFIED

TECHNICAL SERVICES

--COST EFFICIENCY

--TIME EFFICIENCY

--IMPACT ON PUBLIC SERVICES

The public services of libraries can be and should be evaluated in terms of the percentage of user needs which the library is able to satisfy. The technical services, however, cannot be evaluated directly in terms of user satisfaction. Technical services have to be evaluated in terms of their efficiency, which brings in cost and time factors. One might ask how efficient technical services are and what the impact of technical services on public services is. If the technical services function is very slow, this has a significant impact on public services. The greatest period of demand for a book may already have passed when the book reaches the shelves. So inefficiency in technical services has a rather significant impact on user satisfaction rates.
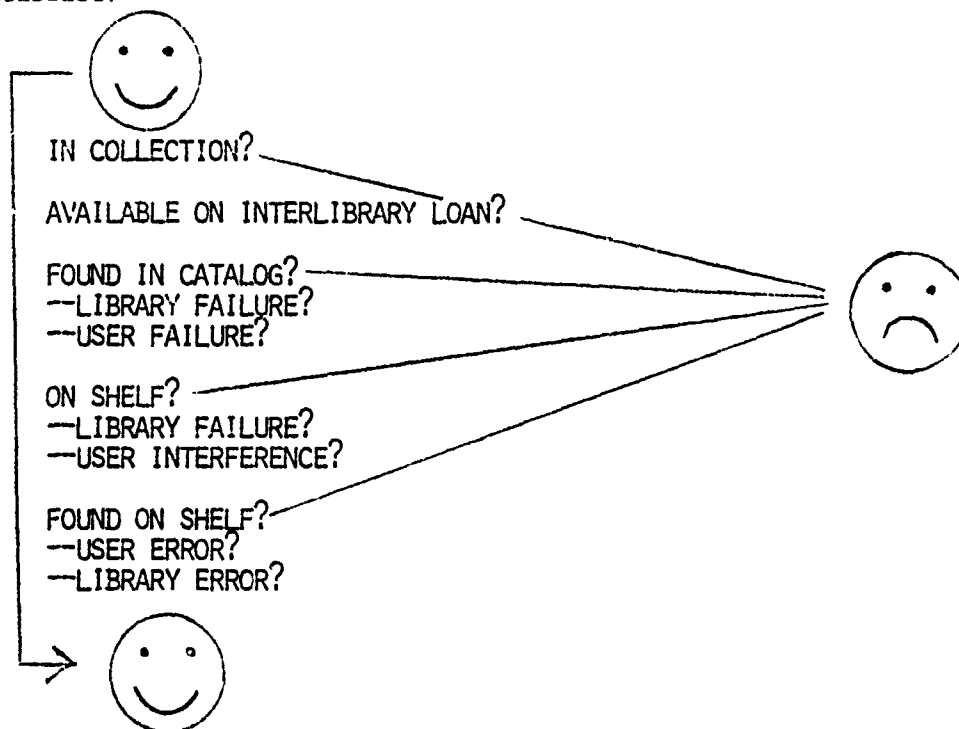
EVALUATION CRITERIA

COST
--MONEY
--EFFORT

TIME
--WAITING TIME

QUALITY
--SUCCESSFUL (KNOWN ITEM)
--HOW SUCCESSFUL (SUBJECT SEARCH)

Now, to mention more specifically some evaluation criteria; all services
of any kind are evaluated by their users in terms of cost, time, and quality.
Cost, time, and quality are as relevant to the evaluation of airline services
as they are to library services. People, either consciously or unconsciously,
evaluate any kind of service function in terms of cost, time, and quality.
The cost can be cost in actual dollars, but it can also be indirect cost in
terms of effort involved in using the service. You know, the effort involved
is also a cost to the user. If I have to drive ten miles to a library and then
can't find parking, there is a lot of effort involved in using that library--
it costs me. The most important time affecting library services is waiting
time--how long I have to wait to obtain a document, how long I have to wait to
get the results of a literature search. And third, we have the quality
criterion. In terms of the quality criterion, some services can be
evaluated in terms of whether they are successful or not. This is the easy one.
The other kind of service cannot be evaluated as successful or not successful,
but must be evaluated on a scale of relative successfulness. The example of
the service which can be evaluated in terms of its absolute successfulness is
the service in which a known item is requested--i.e., a document delivery
service. But there are other services which are much more complex in terms of
evaluation criteria. With any kind of subject search, particularly a literature
search, you can't look at the search results, the abstracts for example, and
say yes or no. The subject search can only be evaluated on a relative scale of
successfulness. This is really subjective, not objective. Then there are those
services which fall in between, like factual reference. If I go into a library
and ask for the current address of some journal, either the library will give me
the correct address or not. In other factual reference questions, there are
degrees of correctness. One thing that emerges very clearly from evaluation is

that library services are much more complex than it would appear on the surface. The factors which determine whether or not the user will be satisfied are very complex. Many things have to be right before that user walks out the door satisfied.

IN COLLECTION?

AVAILABLE ON INTERLIBRARY LOAN?

FOUND IN CATALOG?
—LIBRARY FAILURE?
—USER FAILURE?

ON SHELF?
—LIBRARY FAILURE?
—USER INTERFERENCE?

FOUND ON SHELF?
—USER ERROR?
—LIBRARY ERROR?

This represents a user walking reasonably happily into the library looking for a particular item, and what we want to know is: will he walk out happy or not? A whole series of questions arise. The first question which arises for evaluation purposes is: is the book in the collection? If not, can it be obtained via interlibrary loan in time to be useful to the user? Can the user or the librarian find the item in the catalog? In a large library, this can be a significant failure factor. Some studies have shown that in a large university library, a patron only stands an 80% chance of finding an owned item in the catalog. The larger the library, the larger these failures loom. The failure in this instance may be on the part of the library or the user. The next question which arises is: is the item on the shelf? If it is not on the shelf, it may be due to library failure or user interference. Every user of the library interferes with every other user. If I walk into the library and someone two hours earlier has borrowed the book I need, he has interfered with my use of the library. Library failures are those situations in which the book is misshelved, is waiting to be reshelved, or is being rebound. If the item is

on the shelf, we need to know if it can be found on the shelf. If it is
correctly shelved, but the user cannot find it on the shelf, we may regard
this as user error. On the other hand, it is library error if the shelves
are not clearly marked so that the patron is led to the item.

90% CHANCE THAT ITEM IS IN COLLECTION X 80% CHANCE THAT ITEM WILL

BE FOUND IN CATALOG X 80% CHANCE THAT THE ITEM IS ON THE

SHELF X 80% CHANCE THAT ITEM WILL BE FOUND ON THE SHELF =

54% FAILURE AND 46% SUCCESS IN SATISFYING A REQUEST FOR

A KNOWN ITEM

If we apply some hypothetical but realistic probabilities to this example
(these are probabilities for a large academic library) we see that there is a
90% probability that the item is in the collection; there is an 80% probability
that the user will find the item in the catalog; there is an 80% probability
that the item is on the shelf; and an 80% probability that the user can find
it on the shelf. If you multiply all these probabilities together, you have
a 46% probability that the user is going to walk out of the library happy with
the book in his hand, and a 54% probability that he will not. These figures
are just about right for large academic libraries.

Approaches that have been used by librarians in collection evaluation
break down into three major categories. One is the use of subject specialists.
This is an option available mainly in academic and special libraries. The
subject specialist must know not only the character of the library's collection,
and know the subject literature, but also the uses to which the users put
the collection. This is necessarily a subjective test. The second approach
to collection evaluation is to check the collection against lists. In some
cases there are standard lists available--like Books for College Libraries,
a recommended core collection for an undergraduate library. But for
most subject libraries, there won't be any kind of list you can use. On the
other hand, the possibility always exists of creating a special list for
evaluation purposes, of building a list. Suppose I want to know how good the
holdings of a particular library are on the subject of tropical medicine. One
possible approach is to select a number of recently published books on
tropical medicine which have been well reviewed in medical journals, to make

a list of references cited at the ends of these books, and to put them together
into a bibliography of sources that scholars writing on the topic of tropical
medicine today are citing. Next, I want to determine what proportion of these
sources are available in my library. I use this specially prepared checklist
and check it against the library's holdings. The same technique can be used to
evaluate any data base. This is an inexpensive technique--it doesn't require
too much effort to compile the bibliography or to apply it.

Another possible approach to collection evaluation is simply to look at
the collection in terms of how it is used now, or rather, how it has been used
in the immediate past. One determines the volume and type of past use, the
object being to establish useful retirement criteria for those items which
should be placed in less accessible storage areas or even discarded. One can
also use this data to establish a core collection to be put on open access
shelves. It can also be used simply for collection development, to improve
selection policies, and to identify books which require duplicate copies.
These studies were really cumbersome to do before libraries had automated
circulation systems. But if you have an automated circulation system, you can
build in an evaluation component very easily. For example, one possible
approach is simply to relate the amount of use of the collection to the
expected use. Generally speaking, you expect a large collection to be used
in proportion to the space it occupies. So, for example, you might collect
data for the following grid:

RELATIVE USE

CLASS NUMBER	NO. OF VOLS.	% OF COLLECTION	% OF USE
610	172	.17	.45
620	309	.30	.28
630	524	.52	.14
640	602	.60	.57
650	144	.14	.18

From statistics like these, you can see that the 610's are an overused class,
while the 620's are used just about in proportion to their representation in
the collection. From data like this, one can pinpoint where selection policies
may need changing. The same kind of grid could be used to compile data on the
age of materials circulated in various classes. A sounder weeding policy results.

CLASS NUMBER	ON SHELF	IN CIRCULATION
610	128	44
620	200	109
630	321	205
640	501	101
650	89	55

Another possible approach which was used years and years ago in a purely manual environment in a public library in England involves doing a count one day each month of the number of books on the shelf in each class versus the number in circulation. By comparing these figures from month to month, you see which classes are gaining in use and which are declining in use. An automated circulation system is ideal for collecting data like this.

CALL NUMBER	DAYS AVAILABLE	IN CIRCULATION
BOOK #1	280 DAYS	242 DAYS
BOOK #2	280 DAYS	14 DAYS
BOOK #3 (2 COPIES)	560 DAYS	327 DAYS

You can also use an automated circulation system to identify books which are being used so frequently that there is very little probability of the book's being on the shelf. With this data, you can buy additional copies of those books or shorten the circulation period. Data for this kind of evaluation might be gathered in the form of the number of days the book is in circulation versus the number of days the library is open each year. For example, Book #1 is in circulation 242 days each year. There is a very low probability that a user walking into the library will find that book on the shelf. On the other hand, Book #2 has the same theoretical probability of being circulated, but it has in reality only been in circulation 14 days. There is a very high probability that in the future, that book will be on the shelf when needed. If we have two copies of a book, then that book is available 560 days during the year and it was in fact absent 327 days from the shelf.

Now let's talk just a little bit about availability. So far, we have talked about evaluating the collection in terms of which items are in the

37

collection and which are not. There is another important aspect that we want to look at, and that is what is the probability that a particular book will not only be in the collection, but will be on the shelf at the time the user needs it. There are two possible approaches to doing an availability study. One is, as we have said, the document delivery test. It was developed for the National Library of Medicine in the 1960's. The document delivery test is conducted by establishing a citation pool, a pool of bibliographic references to items for which users of a particular library can reasonably be expected to have a need.

You can assemble this collection of citations by the method I mentioned earlier--taking references from recent publications. I would identify a number of papers published recently--in the last few month -in reputable journals and choose enough of these papers so that the references at the ends of these papers would add up to something on the order of 2000 to 3000. From this pool of citations, I would choose 300 entirely at random. Three hundred, it turns out, is about the size you need for statistical validity. Since these citations are being made in 1978, they can reasonably be expected to be asked for in 1978 (assuming your patrons are reading the 1978 literature). The things you want to know, then, are:

1. Are these items in the collection? yes or no
2. If no, can they be obtained on interlibrary loan? yes or no
3. If they can be obtained on interlibrary loan, how long will it take?
4. If they are in the collection, where are they located? On shelves? In stacks? Missing? Binding?

What you are doing is simulating 300 user visits to your library and determining their outcomes. Each of these outcomes is converted to a speed code, which eventually produces a capability index. We have to identify speed codes which are relevant to the possible outcomes for a particular library. In other words, the speed codes remain constant, but the relationship between the speed codes and the outcomes will vary from library to library.

For each possible outcome of a search for an item, we assign a speed code on a five-point scale. The speed code is structured approximately on an exponential scale. For example, speed code #1 is ten minutes or less--this would apply to an item which is on the shelf in the right place. Speed code #2 represents more than 10 minutes but less than 2 hours. This progression continues through the worst speed code, which is more than one week. When each item has a speed code, we can tabulate as shown here for a sample of 100 citations:

SPEED CODE	NO. OF CASES	EXTENSION
1	42	42
2	13	26
3	11	33
4	8	32
5	26	130
		263

$$\text{MEAN SPEED CODE} = 2.6$$

The mean speed code then goes into a capability index:

$$\text{CAPABILITY INDEX} = \frac{5 - \text{MEAN SPEED}}{4} \times 100$$

Or in this case, the capability index equals:

$$\frac{5 - 2.6}{4} \times 100 \quad \text{OR} \quad \frac{2.4}{4} \times 100 = 60$$

This capability index of 60 is compared with the ideal result, which is a score of 100. You could get a score of 100 in the capability index if every item on your citation list were physically available on the shelf in the right place at the time of your test. This kind of test has value for comparing libraries of various sizes and types. For example, you could compare the capability of various medical libraries to deliver documents--it really separates the sheep from the goats.

In spite of its accuracy, however, the capability index is an artificial test in the sense that the bibliographic citations are assumed to represent actual needs of library users. In fact, one of the advantages of the document delivery test is that we don't have to bother users with it. It's also very cheap. But let's suppose that we want to test how well a library performs against the document requests of real users. Studies of this kind have also been done and are achievable in one of two ways. One possibility is to simply say that we are going to take all of the users walking into the library during a specified period of time and hope that they will cooperate with us. When they walk into the library, we will give them a card on which to record any   failure they encounter. Now, failures can be of several kinds. One

can be the failure to find on the shelf an item which you know exists in the library because you have a call number. In this case, the patron goes to the place on the shelf where he 'hinks the item will be, and if he does not find it, he leaves the slip on the shelf where the book was supposed to be or turns it in to a central location. The patron can also fill out a failure slip if he doesn't find something he is looking for in the catalog. What happens with these failure slips is that almost immediately the staff of the library checks to find out where this book was when the user was looking for it. They will check to see if there is an entry for the item in the catalog, an entry which the user overlooked. They will check to see the reason why the item was not on the shelf. Perhaps it was in circulation, or reported missing, or waiting to be shelved, or misshelved, or it was in the proper place on the shelves but the user couldn't find it. We want to know all the factors which are interfering with the user. Now, we all know that not everyone who encounters a failure is going to cooperate. The only way we can estimate the degree of cooperation is by interviewing users as they leave the library to find out how many who encountered failures reported them on a failure slip. This method doesn't tell us how many successes there are. A better procedure is probably to forget about having everybody cooperate and just take a sample, like every twentieth user, whom you interview as he enters the library and leaves it.

Now let's turn to cost-effectiveness evaluation. Cost-effectiveness evaluation is concerned with an equation which has two variables--cost on the one hand and effectiveness on the other. We can increase the cost-effectiveness of an operation either by holding its level of effectiveness constant and reducing its cost or by holding its cost constant and increasing the effectiveness. Cost effectiveness evaluation, then, is concerned with the value, in service, provided for a particular level of investment. From the cost effectiveness point of view, a library would reach its optimum--and no library is in this position--if whatever else one did with the budget, one couldn't move one dollar in such a way that it would raise the level of return one iota. That is, a budget would be optimally allocated if there were no way that you could reallocate it among the services so that the reallocation would raise in some sense the level of user satisfaction. It would be maximally allocated. Each dollar that you are now spending couldn't give better value if it were reallocated some other way. There are no libraries, I am quite sure, which are operating like this. What you want to know is, given your present budget, how can that budget be reallocated in some way so that it will buy a higher level

of performance in terms of user satisfaction. And this brings us, in fact, to some typical cost-effectiveness questions, such as: given x number of dollars to buy periodicals, which titles should the library subscribe to; which space should be devoted to which bound periodicals; which titles should be held for how long; which books should be kept on open shelves; which books should be put in open stacks or relegated to some off-site storage facility; which to discard; and so on. These are all cost-effectiveness questions in which we are weighing the cost of buying or storing against an expected level of use. And in fact the most important phenomenon from the cost effectiveness point of view is something which is sometimes known as the principle of least effort. The principle of least effort is a principle which was enunciated by a man called Zipf in 1935.

ZIPFIAN DISTRIBUTION

(y-axis: % OF WORD OCCURRENCE)

% OF WORDS CONTRIBUTING
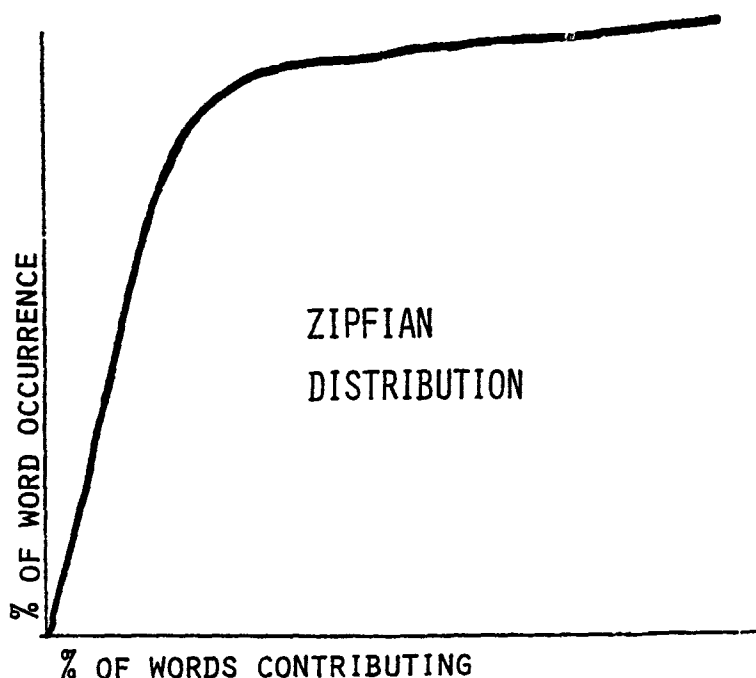
What Zipf essentially discovered is that if you look at the distribution of words in printed texts in any subject field and in any language, a very small percentage of all those words account for a very large percent of the usage. And if you count the percentage of word occurrence, that is, if I have a piece of text which has 10,000 words in it, and I plot the percentage of these 10,000 word occurrences against the percentage of unique words contributing, I will find that a very small number of words contributes a very large number of the occurrences. That is, 10% of the words may account for as much as 97% of all the occurrences. These words in the English language are going to be

41

conjunctions, prepositions, articles, etc. Now it turns out that this
distribution has this general shape. This shape is frequently known as the
Zipfian distribution. This distribution is almost universally relevant in any
situation in which there is a human choice from a finite number of possibilities.
In fact, this curve represents the plot of resources needed to satisfy a
specified percentage of needs. That is, if we plot resources in terms of money
or personnel or whatever against ability to satisfy needs, you operate on a
curve which is Zipfian in character. For people coming in to make document
demands on libraries, or people coming in for information, or requesting
literature searches, or any phenomenon of this kind, it is possible to design a
service which will satisfy some specified percentage of all the needs, whether
it is 85% or 90% or 95% economically. But it would take a completely
disproportionate expenditure of effort to try to satisfy the last 5% or the
last 10% or the last 15% of needs. This is the phenomenon of the 90% library.

THE 90% LIBRARY

% OF NEEDS SATISFIED

RESOURCES NEEDED
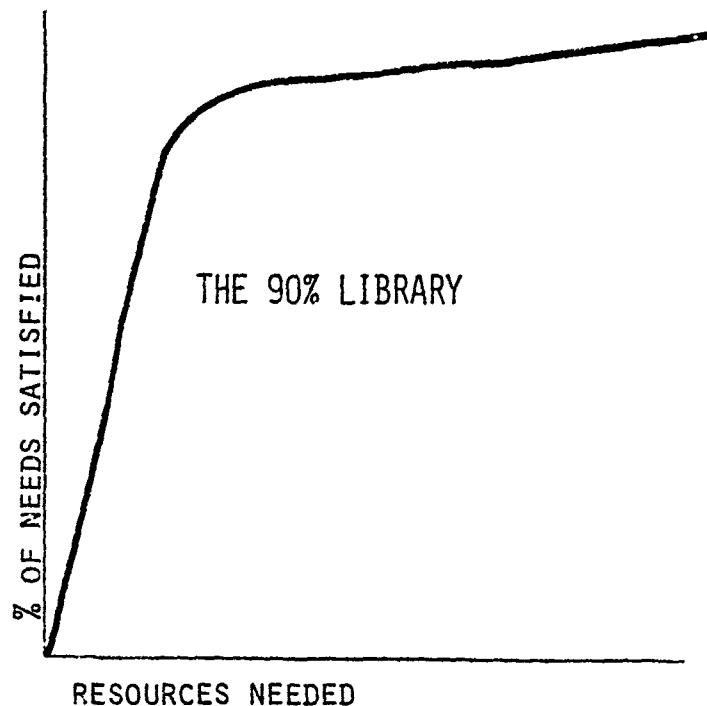
You can design an information service that will satisfy 90% of the users very
efficiently, but it may cost you five times more to satisfy the last 10% of
users than it did to satisfy the first 90%. With the last 10% of needs, you are
on the long tail of the distribution, and things become quite unpredictable.
Needs up to 90% are relatively homogeneous and relatively predictable, but the
last 10% are very unpredictable. You can spend $100,000 to serve 90% of the

needs, and spend $500,000 to meet the last 10% of needs. So from a cost-effectiveness viewpoint, we are trying to look at what service we can provide to a specified percentage of users which is an efficien: goal. For example, 90% of needs can be satisfied by books less than ten years old, and, in the sciences they might be satisfied by books less than five years old. But meeting 100% of needs in the same subject field may require books less than 200 years old. In the same way, the optimum number of periodical subscriptions is very important. You might be able to satisfy 90% of the needs with 150 periodical subscriptions, but to satisfy 97% of the requests might require 1000 titles, and that 7% is costing eight times more than the other 90%. This is very inefficient from a cost-effectiveness point of view. Similarly, 90% of the citations found in literature searching will be found in a specified amount of time. Ninety percent of the factual reference questions can be answered with a reference collection of x number of volumes. It turns out that in public libraries, you can answer 90% of the reference questions with a reference collection of something like 3000 volumes.
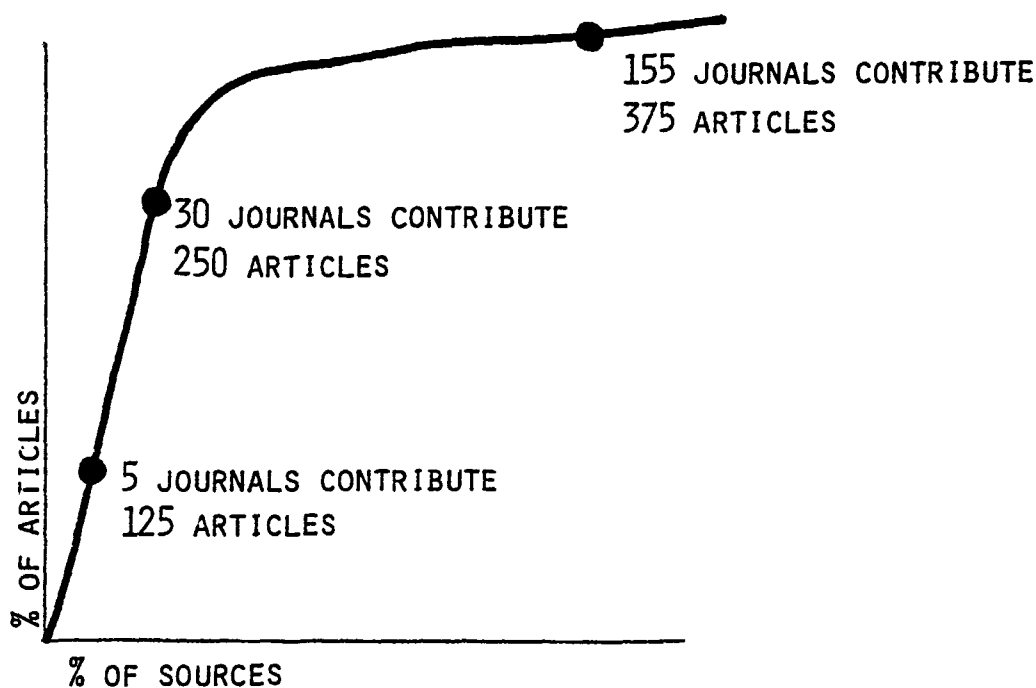
Here is an example in which we study the distribution of periodical articles. For example, in the field of lasers, we may find that in 1977 there were 375 articles published worldwide (this is purely hypothetical), and these 375 articles were distributed over 155 journals. Now, the first third of the laser

literature comes from as few as five journals. So by only subscribing to five journals, I get 125 of the articles. To get two-thirds of the articles, I have to go to 30 of the journals. Thirty journals give me 250 articles. But to get that last third, I have to subscribe to 135 different journals, each one of which published only one laser article. And that's quite expensive. Now, each of those 125 journals which had only one laser paper in 1977 may not have any in 1978. But it is quite predictable that those first five journals will have the largest proportion of laser articles again in 1978. So I try in my cost-effectiveness analysis to determine where I can operate at a realistic level—it's probably not going to be in the top portion of the curve.

Obviously the same phenomenon goes for age—we can satisfy a very high percentage of needs with materials published within quite a short space of time, particularly in the sciences. This phenomenon, the Zipfian curve, the law of diminishing returns, and the whole idea of the 90% library are extremely important.

To keep evaluation of library services in its proper perspective, I'd just like to close with a paraphrase of a popular maxim—you can serve some of the people all of the time and all of the people some of the time, but there is no way that you can serve all of the people all of the time.

MILITARY SPECIAL LIBRARIES IN 1990

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Paul Klinefelter
Deputy Director for Technical Services
Defense Documentation Center

I think some of the most concentrated thinking about what military librarians will need to know and what military libraries will be like several years hence occurs in these workshops. Some of the programs I can most distinctly remember have focused on change. For example, seven years ago at the Industrial War College, we looked at recent changes in the information industry. I think it's about time we do it again, because we have a new set of circumstances. This field of ours has turned out to have imagination and drive. The sessions during this workshop prove that. I think we have rarely had such a concentration of expertise. I have no doubt that anything is possible and that librarians are capable of it.

Libraries in 1990--eleven years is a long time these days. Things are changing. A new generation of differently educated, more effectively trained, more sophisticated librarians is coming out of library school. A very pleasant note is that so many of them showed up here along with us aging geniuses. It doesn   scare them as it did us to be called upon to do systems analysis, site design, cost-benefit studies, and systems requirements projections into the future. So as long as they are not afraid, and we don't seem to be, why can't we jump eleven years?

A great deal is already under our belts. Commercial systems are becoming effective, competitive. The network approach is, I believe, a very positive thing in that it tends to upgrade the importance and role of libraries and librarians. In a closely knit professional peer group like this one, experience and experimental feedback is available and available quickly. Even the library education process is beginning to respond. Course structure is quite different. One has only to listen to Mr. Lancaster's truly professorial approach to the kinds of things we think about occasionally but don't state very well. I personally think that his presentation was very worthwhile. Librarians are reacting as full-fledged managers, innovators, administrators, and no longer as obstinate roadblocks. This is a bad period economically for all service organizations, but we are learning to cope, and it is amazing how fast. I mentioned that we had taken stock in these workshops, and that they are a good forum for that. I would like for the theme of the 1979 workshop to be "Military Special Libraries in 1990". There are so many aspects that require

and generate and deserve discussion, that I'd like to mention a few of them. Each of you will be able to think of mōre, and perhaps you will be kind enough to pass them along.

Educational requirements now are different than they were a few years ago, and they will be radically different eleven years hence. There will be changes in course structure, and there will probably be specializations, like the MLS/MBA administrator, and so forth. Rules and standards will change, and networking will be widespread. People will be forced to talk to each other and to give up honored, timetested, tried, and favorite ways of doing things locally which don't happen to meet a general need in a network. DDC, by the way, has had to learn this the hardest, longest, and firstest. I hope we will have learned to consider our major holdings not as an archive in the burden sense, but as a resource in the easily accessible sense. Is total visibility for holdings possible and desirable in 1990? Maybe we can debate total visibility versus the national interest. We're just becoming aware that we're doing such a good job now that some of our holdings are becoming known to and getting into the wrong hands. We must look at cost projections eleven years from now, when what is a difficult job now may be considerably more difficult. Futuristic, forward-looking ADP configurations will develop in tne next eleven years. Perhaps Washington-area resources in this field can be called on. Planning in phases, projections in time--this is a good exercise in seeing how close we can come to the kind of work situation we'll have in 1990.

It's going to take some doing. A lot of us, of course, are already thinking about it because we're on the program committee, and some of you can expect to be tapped on the shoulder and asked to help in this and that. We want this to be a productive, useful workshop, all the more this next year in that I haven't any of Georgiana's show and tell. We don't have any nuclear warfare movies or nuclear bombs, or any submarines ready to sail up the Potomac. There must, therefore, be a replacement in substance, and we'll do the best we can. I want to give us as a group a year to think about what libraries should be like in 1990 and how we should prepare ourselves. Let's see what we can come up with. After all, this group, with its expertise and cumulative value to the country is a national treasure and not a series of national monuments.

DDC UPDATE

Paul Klinefelter
Deputy Director for Technical Services
Defense Documentation Center

DDC is certainly no mystery to this group, and defining its role and
its mission is unnecessary. Even the fact that we have the four basic data
banks, technical reports, work in progress, program planning, and indepen-
dent research, is hardly a secret, and I needn't belabor that. The fact
remains that the breadth and possibilities for service from DDC are poorly
understood. This is probably as true as it ever was. To the extent that
we can clarify the range of services and information that you can get from
DDC, it bears restating.

DDC's role is changing. It is changing largely for technical reasons.
It is still, as it has been for so long, a storehouse, a warehouse, a place
to go when you can't do any better in your own home ranch, a place to go
when you need a definitive answer that can be supplied with technical reports.
However, the kinds of information we provide have changed, and the mission and
responsibilities of DDC are being modified by counterbalancing pressures of
technical advances and resource limitations. It is interesting to me that
we frequently have visits from the counterparts to DDC in Great Britain, Canada,
Germany, France, Australia, and the Netherlands, and their problems seem to be
so close to ours. Some of them don't have money problems, but they certainly
have access problems and all the rest of it. For the most part, their systems
are modeled on ours.

There are some changes that affect DDC, in fact all of us in DOD. You
know them as well as I do, so I will run through only a few. The reorganization
of the Defense Department means that our own policy maker, the Director of
Defense Research and Engineering, has changed position a little bit. His is
now one of two in the number three position in DOD. He is the Undersecretary
of Defense Research and Engineering, but there is a corresponding one for
planning. As far as I know, this other undersecretary has not been named, but
there is a slot.

Under the Undersecretary of Defense Research and Engineering is Dr. Ruth
Davis, whom some of you have met and who is certainly well equipped to work
well in our field. She has long been associated with information and
information management, with computers particularly. She is a Deputy Under-
secretary for Research and Advanced Technology. This is in the direct line of

policy for DDC and for technical information generally. One of the things that Dr. Davis has done is to create a special assistant who will, I think, eventually be called again a Director of Technical Information. The man in question held a similar post for the Army, Col. Andrew Aines. Col. Aines has done related work in COSATI and at the National Science Foundation. Dr. Davis is considering some proposals from Col. Aines, who is attempting to restate what the technical information picture in DOD should be.

There is at least one proposal in the wind, and I don't know how long it will take to come into being, to change DDC's name to the Defense Technical Information Center. That may or may not happen, but at least it's in the proposal stage. There is also talk of having counterpart Directors of Technical Information named in all the Services, which would seem to give a better channel for the kinds of decisions we need.

There are other proposals as well, and they may help DDC, in that we may get more support, certainly more policy support, in some of the things we're trying to do. We are at present, of course, administered by the Defense Logistics Agency, and this is an entirely different part of the defense mechanism, but for administrative purposes, it works well enough. I don't know whether or not that will be changed.

Those are background things which are in the works. Now I'd like to talk about something that affects us much more directly--some of you very directly-- and that's DDC's effort to improve its capabilities in its own behalf. You know we started to automate in 1960. We had an SS90 and then a second one. Then we got an 1107 and another, and an 1108 and another. Now we're advancing, but not very fast, it turns out, into the next generation. The redesign process is badly needed, because our programs have grown like Topsy, by accretion. They have been plastered on here and there. They need to be revised and made efficient in terms of cross-searchability in all the data bases resident at DDC. This redesign process has taken a lot out of us, and it is going to take a while to do. It is based on an entirely new computer system which we actually have, the 1182, a very powerful system which has run afoul of procurement difficulties, and which are causing us all some heartburn.

We told you we were going to get another computer and were going to see how it worked in August and early September. It did work very well, as I understand it. We got beautiful service out of the thing because it was running on a disc storage which was compatible. But we were required to let out the disc storage contract in a separate competitive bidding, and the lowest

48

bid was one which has not as yet proved compatible with the computer that
we have. A successful bidder on a contract like this has 30 work days to
prove that his product functions, and he can take up to 60 days to accomplish
this. Well, the 60 days are about up, but that will only open the possibilities,
because then we can have law suits over a number of things. So, with all the
best intentions, the Brooks bill to make a competitive business out of ADP
contracting has backfired, and we may be left with an inoperative computer
system. The best thing that could happen would be that the disc storage
would suddenly become operational, and it could, it's possible. Right now
there are all sorts of arguments about what is proprietary to which computer
company, who owns what, and frankly, nobody is going to tell anyone else
anything.

So this fall we have had all this truncated access time. That's where
you are affected. We used to have a good deal of access, and this has been
curtailed dramatically. I wouldn't attempt to give details as to how much
time you're getting on the online system versus what you used to have. Let's
just say it is considerably less. I believe the problem is worse on the east
coast than in the west. What you already were just able to do on your
terminals with the access time you had, you are now trying to do in half of
that time. Those people who are doing SBIE are struggling nobly to input
with very limited access. At DDC, we're doing what we used to on two 1108's
on one 1108. The gymnastics are taking their toll and we're all a little
tired and wish it would all go away. However, there's little hope for that.
We've been through this before, and I imagine that this will work out--how
soon we don't know. The limited hours of online access are something we don't
like to see happen because it comes at a bad time, a time when we have so
many plans and would like to do so many things in concert with you, many of
them things that you have suggested. Well, that's the worst news I'll pass on.

Some other things have happened at DDC, and again, you're probably aware
of these. The fact that TAB and its indices have since this summer been
unclassified is a great victory. We have wanted it that way for a long time.
Back in the 60's when it was classified, we had no alternative. We didn't want
it, but in that climate it was decided that as a cumulative work, it should be
considered confidential. This has finally been cancelled, and we are changing
small things in the way we put TAB together. We are leaving some things out,
but in return we now have unclassified bulletins and indices. I think this will
make a great deal of difference in TAB's usefulness, since you won't have to

40

lead every patron to the vault to use it.

The fact that we may now furnish copies of all AD-numbered documents to you directly from DDC means that costs are reduced to $3.00 for hard copy versus whatever the traffic will bear at NTIS. There is a comparable reduction for microfiche. This operation is probably more efficient, too. The capability to offer hard copy or microform for all AD's is something we have wanted to be able to do for a long time.

We have talked a good deal about another development, the experiment on shared bibliographic input, which was described to at least one task group in some detail by Pat McConnell this morning. We feel it offers a great deal of hope for the future. SBIE has been running slightly more than a year. As you are aware, it is simply shared cataloging for technical reports. We have six sites, the site here at the Air Force Weapons Laboratory, the Naval Research Laboratory, ARRADCOM, DNA, and DCA at the DOD level, and the Institute for Defense Analyses as a contractor or quasi-contractor. That represents about six different kinds of input and work situations. It has been an important development, an important thing for us, that it works so well. The participants took over and under circumstances of limited terminal time, they chose to take some of that time to type descriptive records directly into the file. These records go into the online system and into our bibliographies. They receive AD numbers in a new AD-E number series two months to six weeks before they are announced in TAB. When they appear in TAB, the AD-E numbers first assigned them are overlaid by the traditional AD-A, AD-B, and AD-C. But the fact remains that the professional work, the subject indexing and the descriptive cataloging, is done, and very reliably done, by the people who know it best, those at these six sites. They know a great deal about the subject matter and content of the reports that they are processing. In the last twelve months, the SBIE program has put in over 1200 records. Some of these very small staffs manage to do this in spite of the limitations on manpower. We have to admire that kind of approach. The experiment will result in some radical changes in the system. For instance we may eventually have descriptive records for technical reports that DDC does not itself hold. This means a decentralization of holdings to libraries around the country with central description in the online system.

Another idea proposes true shared cataloging, where it would theoretically be possible to do as OCLC does--take a new acquisition, check the file to see if there is a record, and if there is not one, to make one. This is slightly more complicated in our contexr, since we have to play around with classified,

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limited, proprietary, sensitive materials, and it may or may not work for some sectors, but it will be tried. Eventually we will be looking for different kinds of input and more sites to do this kind of shared professional work. It is going to revolutionize the way we retrieve technical information.

Redesign in DDC has some interesting side lights. One of them is that we have to redo so much. The data banks have separate commands and instructions, and if there's any resemblance, it's sort of an accident. What we need to do is to get an entirely cross-searchable data bank where all files are approachable in the same terms and using the same set of data elements. A data element dictionary which crosses data bank lines is being designed. Much of what you tell us goes into that effort. The data bank dictionary is the keystone of a general redesign which involves a single data base orientation for DDC services.

Something that some of you know something about is Mil Standard 847A, which is the good book as far as writing technical reports goes. It was issued some years ago and needs to be revised. I'll simply say that we are working on a total revision, but it's going to take a while. I should mention that this Mil Standard 847A includes the rules which apply in writing a 1473, the Data Summary Sheet. Many scientists who work with you and for you are going to be pleased to hear that we can once again put authors' names on the covers of technical reports. It was ridiculous ever to have taken them off, but they were removed in the first place because certain congressmen felt that it would be nice to have their names on the covers of popular reports. This was done so widely, apparently, that in order to put a stop to it, the legitimate scientists who had earned their names on the cover were also denied credit.

One point more might interest you. You remember that the 1473 calls for a number of fields, and one of these is field 17, which represents the limiting statement for a technical report--either public release or U.S. Government Only. In the field that follows, you can delimit the abstract by making a statement that the abstract is publicly releasable, even if the report isn't. That's very easy to do, but in most cases, it has never been done, partly because the Mil Standard was poorly written. The revised standard will indicate that you must say if the abstract alone is publicly releasable. This will provide a lot more abstracts for TAB. Users complain that there aren't enough abstracts in TAB, and the complaints are highly justified.

We are putting comprehensive microfiche files in the Boston and Los Angeles branch offices. For those people in the northeast and on the west coast, we hope that being able to use copies from those microfiche files will shorten the time it takes to get a copy. This system isn't fully operational, and we don't really know how it will work out.

Another change in the release of information has to do with the program planning 1634 data bank, which was always excluded from contractor access. One of the contractors wrote a letter to Dr. Davis asking for access, and now the 1634 file is available to qualified contractors. Mechanically this will be possible after the first of the year. Right now, we have to get profiles ready for firms which have never had them before in order to base release of this planning information on need-to-know.

We also have a project to develop a title search capability, something we have needed for a long time. Our files have never been searchable by the identifiable title words, so we have worked up a little ten character thing which we think will in most cases allow us to go into the title field and identify titles by using selected characters from the first words. I don't know how long this project will take. It's not a terribly complicated one, and we hope for next year.

There are various vocabulary tools in the works. This is mostly catching up, because the term lists that you can get for your terminals are out of date. We would like to deliver them to you more currently.

Well, these are some things that have happened at DDC. I'd like to go on to what seems to me to be a philosophical trend or change in the way DDC operates. The number of services offered at DDC has gradually increased over the years. But the nature of the services is now changing because we can not grow or get more money, and, in fact, neither can you. What may best be called decentralization is being done a number of ways in order to be able to afford to have a centralized archives and a central source for services. Decentralization of access to the online data bases is certainly a beginning. Having branch offices in Boston and Los Angeles is a sort of decentralization in the sense that everyone doesn't have to go to Alexandria. We have decentralized reference materials in that we give you as nearly as possible the wherewithall to do your own reference with profile services, current awareness, and ADD. For those reference sites that can afford it, the automatic services have made a difference in the way you give your service. It means that you can do a lot of reference immediately without having to go beyond your own collection.

Recurring reports from the management data banks and program planning documents are available in the same way. And of course your profile can be changed as your mission changes, putting in your hands the things you are most likely to need so that we only have to provide you with exceptional services. There is now a decentralization of input, and this will go as far as the system can afford to support it. With the advent of shared cataloging, the rules and descriptive information and subject indexing are accepted as they come from the field, and this is, I think, a very good thing. It means that we are all one family in a good and networking sense. A further aspect of decentralization is what we were talking about as one of the phases of the shared bibliographic experiment--the decentralized holdings held in IDA or Hanscom or Eglin or wherever, which we will now be announcing. If these reports can't come to Alexandria, about the best we can do is to tell people where they are through this central system. Then people at least know of their existence and can go and see if they are eligible to have them. Well, all these trends in the evolution of DDC correspond to a greater level of sophistication in your own houses, so we are really growing together.

MICRO/MINI-COMPUTERS FOR MILITARY LIBRARIES
TASK GROUP REPORT

Task Group Leader: Normand L. Varieur
HQ US Army ARRADCOM

Task Group Recorder: Charles R. Moore
US Army Foreign Science & Technology Center

Objectives

1. To examine the use of micro/mini-computers in libraries of various sizes.

2. To establish among military librarians a channel for interchange of information and ideas on micro/mini-computer applications.

3. To examine existing regulations and procedures concerning ADPE in order to determine the need for modification to meet specialized library requirements.

4. To establish a liaison with the Federal Library Committee and other groups concerned with micro/mini-computers.

5. To examine availability and need for development for military library software packages.

Discussion

1. The task group leader requested that members introduce themselves, after which the objectives decided upon by last year's task group were reviewed to redetermine their validity.

2. A long discussion ensued on the problem of librarians who are too hardware oriented. It was determined that attention should be paid to software packages, and a fifth item was added to the objectives (see Item 5 above).

3. Discussion was then held on who should be requested to follow through on recommendations made by the group. There seemed to be little feedback from MLW on some of last year's recommendations. It was therefore decided that recommendations made this year be very specific as to what should be done and who should be requested to do it.

4. Two microcomputer producers were asked to exhibit their wares to the group, but only Radio Shack did so. The District Manager, Roger Sutterley, and Store Manager, Mike Feyen, demonstrated two different models of the TRS-80. They distributed catalogs and discussed at length with the group the applications, peripherals, and costs of these microcomputers.

5. Larry Desonier, AFWL Director of Communications, described in detail the minicomputer system AFWL intends to employ experimentally to determine the uses to which the library and the laboratory will put a larger system.

6. Gene Beary, Chief of the Technical Library at Natick R & D Command, then discussed the uses to which he puts his own personal TRS-80 microcomputer. He described the library uses he intends for his system as a demonstration for the top management in his organization. He is willing to discuss these uses with anyone who wishes to correspond with him.

7. Ruth Mullane, in charge of ADP at the Army Library (Pentagon), gave an interesting discussion on progress with the minicomputer system being developed for that library by the Lister Hill Biomedical Research Center. She explained in detail the use of the bar code system.

8. Cathryn Lyons of the Dahlgren/White Oaks Naval Surface Weapons Center described the many databases she hopes to bring together using a minicomputer.

9. Janelle Williams gave a short presentation on TRALINET, a topic which was also discussed at another group session by Jim Byrn, TRADOC Staff Librarian.

10. Recommendations were then decided upon (see below). The task group leader thanked the task group for the work done during the workshop, and the meeting was adjourned.

Recommendations

1a. Given the importance of this subject to all types and sizes of libraries, we recommend that the theme of the 23rd MLW be Micro/Mini-Computers in Federal Libraries.

1b. If the above recommendation is not adopted, we recommend that a task group on this subject be considered for the 23rd MLW for the same reason.

2. We recommend that the ARRADCOM (Dover site) library be the channel for interchange of information on micro/mini-computers for the coming year.

3. We strongly recommend that the Executive Board of the MLW:
   a. Contact the DOD representative of the FLC to request that the FLC study methods of facilitating the introduction of micro/mini-computers into federal libraries and information centers.

b. Contact Dr. Ruth Davis to request that the Office of the Deputy
    Undersecretary of Defense R & E (Research and Advanced Technology)
    initiate a study for modification of military regulations that
    touch on ADP equipment and usage in military libraries and
    information centers in order to facilitate the introduction of
    these computers.

ONLINE COMMERCIAL INFORMATION SYSTEMS AND SERVICES
Task Group Leaders
Suzanne Lincoln, Air Force Academy
Fred Todd, Aeromedical Library, Brooks AFB

The purpose of the Online Bibliographic Services Task Group was to:

(1) Examine criteria for implementation of the service into federal libraries;

(2) Discuss bureaucratic difficulties facing administrations during the implementation process;

(3) Explain the availability of federal contracts with system vendors through the Federal Library Committee; and

(4) Develop an awareness of the impacts, problems, and future trends of online search services in libraries.

The opening session of the task group commenced with a presentation by Joe Ford of the Federal Library Committee. He examined the role of the information broker providing access to online data bases, and more specifically discussed the Federal Library Committee's commitment to federal institutions implementing online systems. The federal contract with Bibliographic Retrieval Services (BRS) was summarized. Advantages of this contract include the handling of contractual and billing agreements by FLC, reduced rates, training, and user representation.

In the second session, Fred Todd, Director of the Aeromedical Library at Brooks AFB, distributed a bibliography of titles pertinent to online searching. Among those listed were some highly informative state-of-the-art reviews, comparisons of manual versus online search services, and information on implementing and conducting online searches.

A film entitled ACCESS, produced by Stanford University, was shown next. It introduced basic concepts and uses of computerized information access systems. An online demonstration of the Lockheed Information Systems along with an explanation of Boolean logic used by most systems followed.

The session ended with a presentation by Suzanne Lincoln, Reference Librarian at the United States Air Force Academy. She discussed the advantages and problems of online search services and examined the organizational considerations necessary for implementation with emphasis on costs, funding, and staffing requirements.

Session III found Fred Todd outlining the criteria for selection of hardware and online vendors. An explanation of the paperwork requirements in

the Department of Defense for data automation equipment featured examples of the PAR (projected automation requirements) and DAR (data automation requirements). Fred wound up the session with a discussion of the various forms which may be used to manage an online search service. Examples included log sheets and user request forms.

Topics raised in the discussion following the presentation included user fees, search service policies, training, and finally the patron's role in the search itself. The discussion focused on the varied experiences of those in attendance. No conclusions on these issues were made since the needs and circumstances of each library were unique.

The fourth session was opened to general discussion and questions among task group participants. Both theoretical and practical issues were raised, but again interest was highest concerning library search service policies. Cost, mission, and complexity of the search question were factors that all felt should be considered in the policy-making process. Again each library's needs and goals were so varied that no policy could be formulated to satisfy everyone, but it was generally agreed that the online search service is far from being a panacea to the problems of bibliographic retrieval. Rather, it must be viewed in its proper perspective as an integral part of total reference service. Librarians must continually exercise a value judgement to determine if an online search is useful or indeed necessary to fulfill a search request.

The session ended with an online demonstration of the Systems Development Corporation system.

In the final session of the seminar, Suzanne Lincoln presented a paper on the impacts, problems, and future trends of online bibliographic retrieval. Emphasis was placed on the increased demand for rapid document delivery that has resulted from the technological ability to quickly retrieve bibliographic citations. The trend toward more transparent or decreasingly complex access systems was stressed, highlighting various research efforts to attain this goal which in turn will affect the role of the librarian as search intermediary between the user and the system. Economic and legal problems of online systems were also considered.

At the conclusion of the session, the task group voted to include the impact paper in the proceedings.

IMPACTS AND FUTURE TRENDS IN ONLINE BIBLIOGRAPHIC SEARCHING

Suzanne Lincoln
Air Force Academy

"Online searching has provided a new dimension both to scholarly research and to library reference work. This 'new' reference service is seen by some as a revolution in professional librarianship and by others as a natural extension of the traditional reference service as it has developed over the past century."[1]

Whether one views online searching as revolutionary or merely evolutionary, it is clearly one of the most important developments to have occurred in the field of information exchange. Continued growth of online services in libraries is assured, but its effect on librarians and users is less certain. Only recently has the literature discussed far reaching impacts on librarians and users. The results of such studies are significant for anyone involved in or considering online services, and the prognostications for the future are noteworthy.

Before embarking on a discussion of impacts and trends in online services, I would like to back-track for a few minutes to consider briefly some historical developments in information services.

Martha Williams (at the University of Illinois, Urbana) believes we are in the middle of a four phase history of data base generation.[2] The first phase was directed at modernizing the production of printed abstracting and indexing services by producing the information on machine-readable tapes. No attempt was made to design indexing schemes beyond those already in use by A & I Publishers. The tapes generated for production were merely by-products of the service and little thought was given to other possible uses.

In the second phase of online development, it was recognized that the computer could also be utilized to search the machine-readable tapes. Federal agencies began to support a number of research efforts to design bibliographic searching systems for distribution. Most notable among these efforts were federal contracts to the Systems Development Corporation which developed software for MEDLINE and to Lockheed Information Systems which developed software for the

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[1] Pauline Atherton, Librarians and Online Services, p. 115

[2] Martha Williams, "Online Problems", Bulletin of the American Society for Information Science, v. 3, no. 4, April 1977, p. 14

NASA, ERIC, NT.C, and NAL data bases. Since then many other data bases have been added to both systems, which have become two of the largest access centers in the nation for online bibliographic searching. Together Lockheed and SDC provide access to bibliographic information in virtually all subject fields through well over 100 data bases.

We have recently entered the third stage of development which involves the production of distributable data bases with no printed counterparts. In the fourth phase of development, distribution will become entirely electronic with no physically distributed tape. Electronic access to online journals and data banks as well as abstracting and indexing services may very well change the role of the service vendor in the future. Such a development will also have an effect on data base producers, librarians, and users.

Statistical Trends

Where are we today in terms of online development? A quick glance at statistics will tell us that this is a fast growing technology gaining acceptance in all types of libraries. In 1975, Lockheed and SDC together offered around 30 unique data bases. Today, Lockheed provides access to more than 80 data bases and SDC provides service on more than 50 data bases. In 1977, a new information Service, BRS (Bibliographic Retrieval Systems) emerged, offering nine of the most highly used data bases and making inroads into the relatively untapped academic market (63% of BRS membership). In 1978, all three vendors have added or announced at least 36 data bases. Today BRS, Lockheed, and SDC as well as many other online vendors such as NLM, ESA-SDS (the European space agency) and NYTIB together offer more than 370 data bases.

In 1977, more than 2,000,000 online searches were performed, an increase of more than 800,000 over the previous year. That figure includes only public vendors of bibliographic online search services. It does not include legal or numeric data base services (like Financial Securities Econometric).[3] The increase is due to several factors. BRS entered the market with reduced rates which increased academic interest. NYTIB doubled its membership, and NLM increased its customer base by 45%.

How has the rapidly growing field of online information retrieval affected libraries and their patrons?

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[3] Martha Williams, ALA Yearbook 1978, p. 110

Online searching is directly responsible for affecting library budgets and
staff time. It has also caused the end user to achieve a greater awareness
of and appreciation for the complexities of information retrieval. By the
same token, the patron has placed greater demands on other library services.
Let us look at some of the ways which librarians and users have felt the
impact.

Impact on Library

Although many see online searching as a cost- and time-saving service, it
is in fact an add-on service in terms of the library budget and staff time.
New equipment must be purchased or rented and service contracts for its
maintenance arranged. Funds for support materials such as search aids and
thesauri, and training of potential searchers must be allocated. Whether or
not a library imposes a fee structure to recover either part or all of the
expenses incurred, the aforementioned items clearly will take a cut out of the
budget at the outset of the program.

Also consider staff time, which is severely affected. Among the many
and varied activities which reduce staff time are a successful and ongoing
promotions program, accounting, bookkeeping, and statistical functions, and
training and development. In addition, the pre-search interview, the search
itself, and the follow-up which may include evaluation of the results of the
search and referral to other printed sources within the library is estimated
to take an average of one hour or more per customer.[4] The reallocation of
money and staff for a service previously done in most cases by individuals
creates a real dilemma for the library administrator--that of reducing the
commitment to other programs or hiring more staff and imposing a heavy fee
structure on the patron to recover costs. Such actions will in turn limit
online use in institutions which do not have departmental research budgets
or heavily granted research programs.

Implementation of online services has impacted the workload in other
departments of libraries also. Heavier circulation of the library's own
collection has been noted in some institutions and has resulted in rapid

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[4]James A. Cogswell. "Online Search Services: Implications for Libraries
and Library Users", College and Research Libraries, v. 39, July 1978,
p. 277

collection development in popular areas. But more notably, interlibrary loan statistics and photocopying demands have increased. Such an impact may affect a library's serials acquisition policy. Increased demand for periodical literature not owned by an institution combined with new copyright restrictions may necessitate purchase of heavily requested journals.

The greater demand for document delivery has had a far reaching effect on library cooperation and the advancement of computer technology. As high speed transmission of bibliographic information has become an economic reality, technology has created a need, and indeed, there is a trend toward high speed document delivery.

OCLC has recently initiated a pilot program allowing participating libraries to make interlibrary loan requests online to those institutions in the system owning the document. Recently the National Commission on Libraries and Information Science recommended that a National Periodicals Center be established at the Library of Congress to streamline interlibrary loan requests. Canada presently has a union list of serials online called CAN/OLE - Canadian Online Energy. Searchers are able to switch immediately from online bibliographic data bases to the union list and quickly obtain locations for the end user. In the United States, three data bases available through Lockheed (ERIC, NTIS, and ISI) allow the searcher to register requests for document delivery online. Research is also being conducted to determine the feasibility of displaying locations online in the bibliographic data base itself. And when possible, this capability will represent a major advance in the field. All of these programs seek to speed up the document delivery process on a national basis.

Finally, online searching has influenced the role of the librarian. The reference function has traditionally been performed spontaneously. With the advent of the search service, librarians have found it necessary to schedule appointments for the pre-search interview and the search itself. Patrons who request online services receive a more comprehensive analysis of their research needs. The librarian has become more readily identifiable as an information specialist since he actually can produce an information package custom-made for the individual.

Impact on the End User

The effect of online searching on the individual user is difficult to measure, but there are indications that changes are occurring. First, his appreciation for the complexities of information retrieval is greater. During the pre-search interview, he is given a brief summary of file contents; data base structure, capabilities, and limitations; and thesauri used in search strategies. Even the most technologically aware people are impressed by the power of the online service, and their awareness of the measures involved when coping with the information explosion are expanded.

The library skills of the end user usually become more sophisticated. He is better at articulating his needs in future searches whether they are manual or automated, and he is more aware of basic thesauri in his field of interest.

Greater appreciation for and sophistication of library skills have also increased the users demand for better service. Unfortunately, present technology is not yet advanced enough to transmit the actual full-text document as quickly, but as mentioned earlier, the problem with document delivery is apparent and will be solved.

Finally we come to the question of fees. Without going into a philosophical discussion of the pros and cons of this touchy issue, I would like to point out that studies indicate that among users there is a fairly high degree of acceptance of fees.[5] Users who realize that timely information has a definite value are willing to pay for it. Furthermore, the tremendous savings in their research time and the comprehensiveness of the search is recognized by many users as a cost benefit. Unfortunately, fees have a negative impact on those who recognize the value of online searching but simply cannot afford it. Realistically, most libraries cannot afford to subsidize online searching in this day of budget cuts and inflationary costs. So the question boils down to not whether to charge, but how much to charge. Most academic libraries are recovering direct costs only -- connect time, communications fees, and print charges. The costs of overhead, training, equipment, and staff time are part of the add-on service of online searching.

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[5] James A. Cogswell. "Online Search Services: Implications for Libraries and Library Users", College and Research Libraries, v. 39, July 1978, p. 276

Problems and Future Trends

Online searching is increasing at the rate of 20% per year.[6] As usage increases, so will the economic, legal, and educational problems. The technology currently being developed to solve these problems is fascinating and the probable solutions have exciting implications for libraries.

Economic Problems

What is the outlook for online searching costs? Will they continue to decrease as competition becomes more intensive and technology becomes more advanced? Or will other factors compel data base producers to raise their prices?

When BRS entered the market with reduced rates, Lockheed and SDC were forced to reduce rates in several of their data bases. Continued competition may force prices down further, but not substantially. The direct cost of online searching can be lowered by the use of terminals capable of transmitting and receiving information at a higher BAUD rate. Traditionally the big vendors such as Lockheed and SDC have been accessed by equipment capable of communication at 300 BAUD or 30 characters per second. The software has now been developed to search these systems at 1200 BAUD or 120 characters per second. Many large cities now have communications networks that can handle high speed transmission of data, and future growth of this capability is anticipated. For some libraries, a reinvestment in equipment may be necessary to lower online search costs and keep up with technological trends. When online transmittal of full text documentation becomes a reality, libraries will require a high speed terminal.

Lobbying may also influence prices. BRS encourages its members to form user committees which in turn advise them on major decisions such as cost increases. Such user involvement could have an influence on cost decisions. Just last month, the American Psychological Association announced an increase in its data base royalty fee.[7] BRS committee members were quick to criticize the move and demanded more justification for the increase which according to APA was imposed because they felt it was time the data base began subsidizing itself more fully. Until now, profits made from the printed version of

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[6] Martha Williams. "Online Problems", p. 14

[7] "'Psych Abstracts' Price Boost Stirs Protest", Library Journal, September 15, 1978, p. 1681

Psychological Abstracts subsidized the data base almost completely as is common with most machine-readable data bases with printed counterparts. This brings us to a major economic issue which we as librarians must seriously consider.

Can we realize a cost benefit by substituting online data bases for printed abstracting and indexing services? At first glance, it appears we can. Cancellation of Chemical Abstracts or Biological Abstracts would annually release a large sum of money for online access. Many small libraries which previously did not have access to expensive bibliographic services can now search them online if necessary without purchasing printed versions.

There are three factors to consider before making cancellations. Are the data elements in the printed version also available online? Often the abstracts are available only in the printed copy. Second, would cancellations penalize the patron who wishes to use the printed indices? If fees are placed on the service, in all likelihood many patrons will suffer.

Third and most important is the long term economic effect of substituting data bases for printed abstracting and indexing services. The production of machine-readable tapes originated as a by-product of the printed publication. Royalties from hard copy distribution have served to subsidize data bases. Currently royalties from online searching do not generate enough profit for the data bases to pay their own way. Consequently, some publishers require online users to subscribe to the printed version of their service. If hard copy cancellations become a common reality, producers will be forced to raise data base costs substantially to supplant the resulting decrease in profits.

In the long run, other economic pressures such as raw materials and the high cost of labor will eventually tip the balance in favor of electronic over printed distribution of bibliographic information. The vendor will pay a much higher sales charge, and to offset the increase, either the data base user charge must be raised or the number of users must be increased.

Legal Problems

As usage of online data bases becomes more popular, legal rights become more of a problem. Copyrights and datarights must be better defined. The legality of passing data over communications lines must be determined. In addition, tariff regulations must be studied to assure that violations do not occur when transmitting data internationally. Martha Williams points out that as data base usage increases in popularity, a "data base user chain" will develop between producer and end user, making copyright violations

more difficult to monitor. Data base producers and vendors are presently
working on legal issues and the Commission of New Technological Uses is
searching for viable solutions.

Trends Toward Standardization and Transparency

The search techniques required to access systems and individual data
bases are almost as varied as the data bases themselves. There is a great
need for standardization in the field of online bibliographic searching.
Data bases and systems regularly change, requiring refresher courses or daily
searching (which is the exception rather than the rule) to maintain expertise.
Currently there are no standards for content, format, or vocabulary. Access
protocols and command languages for each system vary considerably. Unfor-
tunately, standards are purely voluntary and seem unlikely because vendors
are constantly striving for a competitive edge.

The alternative to standardization is to make systems more transparent
or less complex in appearance. System protocol can be made more transparent
by storing access programs (i.e., SDC, Lockheed, and NLM) on cassettes in
so called "intelligence terminals". The log-in process is completely replaced
by inserting the appropriate cassette into the terminal.

Several projects studying various ways of making transparent systems
are underway. MIT, under the sponsorship of NSF, is developing a common
language for multiple systems. If successful, the user would simply need to
input common language commands and specify the system desired. The information
would then be converted to that system.[8]

Fragmentation and duplication of the literature in subject oriented data
bases is another complexity which can be made more transparent. It also is a
concern since it causes greater expenditure of time and money. To be assured
of comprehensive coverage in his subject area, the searcher must determine what
data bases index the journals he wishes to access online. Another factor the
searcher must consider is the type of coverage a journal receives—is it
comprehensive or selective? If several data bases are required to obtain
thorough coverage of the literature, the end user may expect the search to be
expensive.

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[8]Martha Williams, "Online Problems", p. 16

Connect time increases rapidly when switching among data bases, especially if each has a unique controlled vocabulary which must be input separately.

Donald T. Hawkins of Bell Laboratories describes an experiment conducted to measure fragmentation of coverage.[9] The subject "online retrieval systems" was searched in eight data bases. 2,825 citations were recovered, and 357 were considered relevant. The number of relevant citations found in one data base only was 267.

Equally interesting is the duplication of journal indexing by several data bases. Thirty journals and eight data bases were used for the experiment. Coverage was broken down in the following way:[10]

    4 journals covered by 6 data bases
    5 journals covered by 4 data bases
    6 journals covered by 3 data bases
    8 journals covered by 2 data bases
    7 journals covered by 1 data base

Since Hawkins completed the study, SDC has introduced the LISA data base (Library and Information Science Abstracts) which has decreased the complexities of online searching for that discipline.

Another research study seeking to reduce complexities caused by fragmentation and increase end user transparency is the Data Base Selector Project at the University of Illinois.[11] It is attempting to rank data bases in order of output for given subject fields. The experiment merges the vocabularies of 20 chemistry data bases into a master file. The file records the frequency of terms in each data base. Thus it is possible for a user to query the master file by subject and receive a directory of information telling him in what order individual data bases are likely to satisfy his need.

Recently SDC announced the availability of DATA BASE INDEX, an online subject index to the data bases in SDC Orbit. By entering a key search word into the system, Orbit will respond indicating the number of data bases which contain the term. It can also rank the data bases according to the number of times the term appears in each.

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[9] Donald T. Hawkins. "Online Data Base Coverage of the Online Information Retrieval Literature", Online Review, v. 1, no. 1, 1977, p. 62
[10] Ibid., p. 62
[11] Martha Williams. "Online Problems", p. 16

Presently it is not cost effective for the end user to conduct an online search. It is unrealistic to train each user in the use of system access and command languages and educate him to the idiosyncracies of each data base containing information in his subject field. The intermediary or librarian by searching regularly can develop an expertise and keep abreast of changes and developments within each system. As systems become more transparent, however, they will reach a user-oriented level of complexity requiring very little instruction or assistance from the librarian whose role will see yet another change.

Information Brokers

Another trend to watch is the growth of the information broker. Such firms have become quite popular with the advent of online searching. Extremely responsive and efficient, these fee-based services make the business of online searching very transparent to the end user. A prospective client need only to state his research question. The broker runs searches in each system containing relevant information. The results are than given to the user.

Brokers compete well with libraries for the following reasons: the response time is faster, requests for document delivery can be handled more quickly, the quality of service may be higher since the broker is able to spend as much time as necessary on the request, and finally, service is more personalized. The patron does not need to deal with bureaucracy. The charges are high. It is not uncommon to pay between $60 and $90 per search,[12] but most clients are corporations who recognize the dollar value of timely information and are budgeted to cover research expenditures.

Outlook and Summary

Despite the trends in computer technology and the rapid growth of online searching, many library experts agree that continued expansion of the online process will be slow.

Lack of awareness in corporations and academic environments is still high. Library promotional efforts are certainly useful, but word of mouth seems to be the most effective tool thus far.

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[12] Pauline Atherton, Librarians and Online Services, p. 118

The inability of the end user to conduct a search impedes growth. The interactive nature of online searching is its greatest advantage, but the placement of intermediary between system and user makes the process inherently inefficient and more costly to the library.

The cost of searching is a great factor in determining who uses the service if research or departmental funds are unavailable. One can see a user elite developing around subject areas currently receiving attention by funding agencies. Until more data bases in the social sciences and humanities come online, most clientele will be attracted from the scientific and technological fields.

On the other hand, the advantages of online searching have made a strong impact on the information community. The quick response time, the capability to combine terms in ways almost humanly impossible, its interactive nature and ability to produce results instantly or redirect a search question, and finally its comprehensiveness and currency have provided librarians and researchers with an extremely effective tool with which to cope with the information explosion.

In the years to come, information specialists will see advances in computer technology. It will not only impact the end user, but the role of librarians as information intermediaries. Bibliographic retrieval and document delivery may become totally electronic and the means to access the information may be transparent enough so that user interaction will require little or no instruction.

Computer technology has exciting possibilities and potential problems for information specialists. Librarians should prepare for the changes it will bring to traditional reference functions. We must begin now to educate ourselves and our users in trends and developments in computer technology so we are better able to plan for and control our future.

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MILITARY LIBRARIANS WORKSHOP

October 31 - November 2, 1978

ON-LINE COMMERCIAL INFORMATION SYSTEMS AND SERVICES

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ADVANCE TECHNOLOGY/LIBRARIES
    Monthly.
    Knowledge Industry Publications, Inc.
    2 Corporate Park Drive
    White Plains, NY 10604
    $36/yr.

    Up-to-date news briefs. Less comprehensive than Information
    Retrieval & Automation Newsletter

ASIS BULLETIN
    American Society for Information Science
    1155 16th Street, N.W.
    Suite 210
    Washington, DC 20036
    $10/yr. to non-members

    Official publication of the ASIS

ASIS NEWSLETTER
    Monthly.
    American Society for Information Science
    1140 Connecticut Avenue, N.W.
    Washington, DC 20036
    $7/yr. to non-members

DATABASE
    Quarterly.   (March, June, September, December).
    Online, Inc.
    11 Tannery Lane
    Weston, CT 06833
    $52/yr.

    In-depth coverage and review of databases, including specific
    applications to a particular field

FLC NEWSLETTER
    10 issues/yr.
    Federal Library Committee
    Navy Yard Annex, Room 400
    Library of Congress
    Washington, DC 20540
    Free

    Reflects the interests of the Federal library and library-
    related information community

INFORMATION RETRIEVAL & LIBRARY AUTOMATION NEWSLETTER
  Monthly.
  Lomond Publications, Inc.
  Mt. Airy, MD 21771
  $28/yr.

  New techniques, new equipment, new software, events, meetings,
  case experience, Federal policy, international developments,
  networks, communications, media innovation, new publications,
  technology transfer, organization for information services--
  public and private

JOURNAL OF LIBRARY AUTOMATION
  Quarterly. (March, June, September, December).
  American Library Association
  50 E. Huron Street
  Chicago, IL 60611
  $15/yr. to non-members

  Official publication of the Information Science and Automation
  Division of the ALA. Contains technical articles, technical
  communications, news and announcements, input, and book reviews

ONLINE
  Quarterly. (January, April, July, October).
  Online, Inc.
  11 Tannery Lane
  Weston, CT 06883
  $48/yr.

  The Magazine of Information Systems. Except for frequency, the
  most comprehensive coverage of systems to-date

ONLINE REVIEW
  Quarterly.
  Learned Information Ltd.
  200 W. 57th Street
  N.Y., NY 10019
  $45/yr.

  International journal providing scholarly articles in addition
  to news about information systems

SPECIAL LIBRARIES
  Monthly. (Double issue May/June).
  Special Libraries Association
  Circulation Dept.
  235 Park Avenue South
  New York, NY 10003
  $25/yr. to non-members

  Official publication of the SLA

HOW TO GET STARTED IN AUTOMATION

Task Group Leader: Kathy Wright

Agenda:

Tuesday, October 31

    Afternoon: PLANNING FOR AUTOMATION: THE SYSTEMS ANALYSIS
                    Presentation by Kathy Wright, Naval Ocean Systems Center

Wednesday, November 1

    Morning: COMPUTERS, MATERIALS, AND PEOPLE
               Presentation by Thad Werner, Sandia Labs

    Afternoon: THE NUTS AND BOLTS OF PLANNING FOR AUTOMATION OF A LIBRARY
                    Presentation by Bonnie Davis, Naval Explosive Ordnance
                    Disposal Facility

Thursday, November 2

    Morning: NON-CARD CATALOGS
               Presentation by Kathy Wright, Naval Ocean Systems Center

Suggested Reading List

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PLANNING FOR AUTOMATION: THE SYSTEMS ANALYSIS

Kathy Wright
Naval Ocean Systems Center

The mechanization of a library is a major undertaking. It requires the commitment of resources (both money and personnel) as well as management cooperation. When considering automation, management must realize or be willing to take time to do several things:

1. Management must recognize that a problem exists or that future needs must be met by more sophisticated methods. I'll keep coming back to this point again and again.

2. The automation process must have top management support. Without this support, your efforts are doomed.

3. The librarian must plan carefully and have flexibility (i.e., prepare for contingencies). This is extremely important. Remember Murphy's Law.

4. Management must remember that people are involved.

    a. They must have the cooperation of both the staff and library users for a successful program. They must feel a sense of ownership, or they won't use it.

    b. They must also be willing to train the staff for the new system. This can require both time and money

5. Management must be willing and able to monitor progress.

    a. Are the objectives being met?

    b. Are the schedules being maintained?

    c. Is the budget being met?

    d. Knowledgeable personnel who have both the background and time to do the job right must be available.

6. Lastly, the automation of library processes is not a trivial thing.

    a. Libraries are concerned with enormous files. Each card in the catalog has many characters.

    b. These files are also very complex. Catalog filing rules, for example, do not follow an easy alpha-numeric sort such as those encountered in most business systems.

During these sessions, I'd like you to keep in mind that there is a difference between automating from scratch, so to speak, and borrowing systems that have already been developed either commercially or by other organizations. A systems analysis is necessary in both situations, but developing your own system is a lot more complicated. We found out the hard way.

Systems analysis is a less glamorous but very necessary aide to automation. It is an effective management tool for determining the best course of action, and it's also a good way of getting organized. A systems analysis is absolutely necessary for a well-designed and successful automated system, but the results of the study need not indicate automation. It is important to investigate the possibility of using the computer to help in the solution of a problem area, but it is not a good idea to take the computer and build a system around it just because it's there.

Before doing the actual systems analysis, however, there are several pre-study considerations:

1. Is there top management support? This is very important. Without this there is no point in continuing the study, so perhaps the time should be spent in motivating the support.
2. Who should do the study? Is there expertise available in-house or should it be contracted? Finding qualified people can be extremely difficult.
3. Who should be involved? Library staff members? Library users?
4. How much will the study cost?
5. What is the study expected to accomplish?
6. How extensive should the study be? Should it include the whole library or just one or two functions?
7. How long is the study expected to take? A systems analysis can be a very time consuming chore.

Also, the staff should be briefed as thoroughly as possible ahead of time to obtain both their cooperation and assistance and especially to assuage any fears about loss of jobs. But you must also make the staff realize that this is the process of planning change, and the systems analysis is the beginning of this process. Change is a very difficult thing for people to deal with.

Now let's look at the steps involved in the systems analysis:

LIBRARY SYSTEMS ANALYSIS

1. DEFINE OBJECTIVES

2. ANALYZE LIBRARY OPERATIONS

3. SYNTHESIZE ALTERNATE SOLUTIONS

4. EVALUATE ALTERNATIVES

5. ITERATE THESE STEPS

1. Define the library's problem. Look at the scope of the problem, the environment and any constraints on the solutions. Ask questions like:

   -- How is the library organized?

   -- Where does the library fit into the total organizational picture?

   -- What are the purpose and objectives of the library?

   -- Where are the problem areas?

   -- What is the budget?

   -- What are the present and future needs?

   -- Are additional services needed?

   -- What will be gained by making changes?

2. Analyze the library's operations in detail.

   -- What is the relationship among the parts or functions?

   -- What's being done and by whom?

   -- What's being done that's not documented?

   -- Are too many forms being used?

   -- Are the forms easy to use?

   -- Why are certain files being maintained? Can they be consolidated or eliminated?

As I said earlier, a systems analysis is also a way of getting organized, and this kind of organization should always precede any automation. This analysis step is accomplished by assembling all documentation--forms, policy statements, procedures, descriptions of files, etc. Once the information is gathered, what do we do with it? Organizing this material is very difficult. One very good way to show the various processes and procedures in detail is to use a technique called flow charting, which I'm sure most of you are familiar with.

3. Formulate alternate solutions. This is the "creative" part of the analysis. The results of steps 1 and 2 may or may not indicate the need for a change to the existing system. The justification for changes is that they will involve improved effectiveness, efficiency, and/or a reduction in costs.

Automation may not necessarily be indicated. Perhaps a realignment of tasks and personnel, a change in procedures, a consolidation of functions, or the use of non-automated methods might achieve the desired effect. Automation is indicated in certain situations, however:

   -- It can relieve the tedium of routine tasks.

   -- The task may be too large to handle manually. An example of this is the circulation system in a large university library.

-- Automation can improve accuracy in areas like filing.

-- It can provide the addition of services that can only be performed by machine, like information retrieval using Boolean logic.

An important part of this step is to set priorities by deciding the order in which the functions should be automated. Along with this, find out what's been done by others--borrow ideas and systems or look at commercially available systems. Any system that you bring in will have to be adapted to your own particular situation. You may have to sacrifice a few "requirements" but the advantages of bringing in an operational system may more than offset the inconvenience. Developing your own system from scratch to satisfy your "unique" situation is neither cheap nor easy. Besides, most of you are not really unique. There are so many types of good systems available today, it seems a waste of effort and money for most libraries to develop their own. Of course, the availability of certain systems may affect your priorities.

4. Evaluate the alternatives. Look at the various alternatives. What are the good and bad features? One of the most important steps in the analysis is the determination of costs. These will include:

-- Personnel. Will you hire automation experts?

-- Implementation

-- Equipment

-- Operation and maintenance

When evaluating costs, keep in mind that cheapest may not be best. There will be tradeoffs. For example, asking for proposals may entail expensive delays. This idea is expressed in terms of a cost/effectiveness/benefit ratio and relates to the goals that you hope to achieve. For example, in many government libraries, it's easier to get money than it is to get people to do the work.

There are also many other considerations to be evaluated. They can include:

-- Who's going to do the programming if any is involved? A contractor? Will it be performed in-house?

-- Should you go back and include older materials? This is a major consideration.

-- Is new computer equipment needed? Will there be ADP procurement problems?

Because of the regulations and complexities of ADP procurement in the federal government, we in military libraries are required to do some sort of systems analysis to justify the request.

5. Iteration. Modify the results if they don't adequately solve the problem. And remember that there will be tradeoffs. As you can see, there are many critical decisions to be made all along the way. Once the systems analysis has been completed and the results accepted, the following sequence of steps takes place:

-- Detailed Design

-- Design Review

-- Implementation

-- Evaluation

Along with changes in procedures, probably the most important aspect of the proposed design is the method of implementation. The implementation can take place in several different ways:

-- It could be a complete changeover in which you simply change from the old to the new system on a specified day.

-- It could be a phased approach, where each section is installed individually and proven before the next section is installed.

-- You might have parallel running systems. These are often used for large complex systems, but this approach can be frustrating for the staff, and it is expensive.

-- Another alternative would be a pilot operation where the system can be installed and de-bugged on test data with minimum effect on staff and users.

The choice depends on each individual situation and type of automated system.

Once the system is operational, there should be some sort of evaluation later on down the road to determine its efficiency and usefulness. And this is what Professor Lancaster will be discussing tomorrow.

Although a systems analysis usually implies the application of automation, it is an effective management tool for looking at any process.

THE NUTS AND BOLTS OF PLANNING FOR AUTOMATION OF A LIBRARY

Bonnie Davis
Naval Explosive Ordnance Disposal Facility

To begin to automate, you need to understand why you are automating. This is not as simple as it seems. You might be automating because someone higher has decided this is the solution or wants the prestige of an automated system. Automation is fine, but unless a study has been done, there is no guarantee that it will resolve problems. All of you have heard the horror stories about automated systems. This experience can be eliminated only if the "proper" attitude is brought to bear. This phrasing might be strange, but anyone who approaches automation as the end all to all the problems of the world has created the first problem.

The first item on the agenda should be the consideration of automation as one of the possible solutions to a problem. First do a feasibility study of the advantages and disadvantages. To do this, you must know what the present system costs in time, staff, and money. Does it need automation? If it were organized differently, would the problem be solved? Special librarians have always led the library profession in new ways of problem solving. The solution to your problem may be unorthodox and not automated but work. Do not defeat yourself by looking only at the traditional method for doing something. If after analyzing a system you want to automate it, what will you automate? If you choose serials for automation, do you eventually see the possibility of adding acquisitions, circulation, cataloging, or reference? If this may happen, plan for that eventuality now by working up a total design package with the programmer.

Let's begin by discussing the various library systems that might be automated.

Circulation

This has proved to be one of the easiest systems to automate because of the small amount of bibliographic record and because of the fact that most libraries have had some mechanized function of circulation. It is the only area, until the last year or so, in which manufacturers and suppliers had designed specific equipment, like the badge/card readers and the microfilm charging systems developed by the library supply houses. Some of the factors to consider when automating a circulation system are:

a. The type of material to be included: books, technical reports, serials, uncataloged materials, etc. Each type of material carries its own problems for

automating, because of the differences in the bibliographic record.

     b. What type of bibliographic record is kept? Is the record to consist of the identification code, retrieving number, title, author, borrower's name, telephone extension, time limit of loan, etc? Do you need all or several of these?

     c. Do you want to be able to send out a list of overdues or only have a list of who has what by item identification number and a list under the borrower's name? In some libraries, this is sufficient. Once you have the transaction filed, it can be manipulated in several ways:

     (1) To give a list by borrower

     (2) A list by date

     (3) A list by type of material

     (4) A daily list of transactions for statistical purposes

This can only be done if this type of information is part of the transaction records. So, decide what you need to be able to have the proper information in the computer.

     Do you have a classified collection needing a record of signature? If so, this factor must be considered, as it could mean a combination of automation and manual procedures.

     To sum up, the basic factors for automation of a circulation system are:

     (1) Type of materials;

     (2) Type of loans handled;

     (3) Type of borrowers.

The extent to which the system is designed to manipulate these records will determine the complexity of equipment and programs. This probably sounds fairly simple, but a few years ago, a library I knew decided to automate its circulation. At that time, the library was basically open literature, not dealing with classified reports. There were rumors that the base was considering consolidating the classified and open libraries. The librarian did not verify the validity of the rumors and proceeded to automate the circulation. It took a year to get the program up and running, and two years later the libraries were merged. As a result, the progr format had to be rewritten at a cost of another $10,000. When building any system, allow for future possibilities, no matter how outlandish.

Serials

     This is a particularly difficult process to automate. One big reason is the definition of a serial. For example, some libraries define serials as

newspapers, periodicals, annuals, technical reports, handbooks issued at certain intervals, or monographs issued several times a year. The serial presents another major problem in the changeable nature of the "beast". Serials change titles, publishers, frequency, and split volumes. But even with these difficulties, the serials have received a major push for automation. There are several reasons for this: (1) They are the most frequently used of library materials, because of the currency of information; (2) They require the most cost and time to acquire; (3) They demand great amounts of clerical staff to maintain them; (4) Serials can be isolated as a function. What bibliographic record is to be input to the system? Only author, title, date, or are you also going to add notes, subject headings, etc.? What order information, control information or historical information is to be maintained? Will parts of the serial procedures be in acquisitions or will it be all one function? All these needs must be considered before automation can begin. Then decide whether a batch or online system is needed. Most serials systems are batch or started that way because it is not necessary to have instant information from this system.

Acquisitions

Acquisitions is one of the most highly automated functions. The reason for this is obvious as it involves accounting and funding, and many of these functions have been automated, both in and out of the government. It will be necessary to define the extent of the operation to be automated. Do you want to have a file of everything on order, when and where it was ordered, what account it was charged to, the amount not only obligated, but also paid, and the amount left to work with? Is it to be only a record system or designed to issue the purchase orders? Is it to be inclusive of everything ordered in the library, including serials? If only part of the acquisition process is to be included, will the future find you trying to include the rest? Usually, if the first system does well, the next step is to include everything. But, did you plan for this eventuality? If not, you will be faced with redesigning the system or writing a complicated interface program. Another factor to consider is whether you plan to consider automation of the catalog. If so, the acquisition record could be part of the bibliographic data.

Cataloging

Cataloging is a natural outgrowth of the acquisition function, basically because the acquisition record already exists. While this is a supposedly recent development, some libraries have experimented with automated cataloging

85

since the fifties.

There are many reasons that this is one of the last systems to be automated. The size of the storage record and the cost of establishing and maintaining the system are two of the basic factors. What bibliographic record do you want? What sections do you want to be able to search? Are you going to put the complete bibliographic record in each section searched? In other words, do you plan to put the complete bibliographic record in the title, subject, and author files? Will it be sufficient to maintain the bibliographic record in the shelflist section and a partial bibliographic record in the other sections? In what format do you want the information to appear--paper, microform, or online? The best method to decide this is to determine the ways you use the system and the needs of the system. You will then be able to determine whether an online system is needed, or whether com/paper output updated at regular intervals is sufficient.

Reference

An automated reference system is not a natural outgrowth of the automated cataloging system, basically because reference is not a function that can be automated. Now, before I am stoned to death, let me explain. The reference function utilizes materials to identify answers to questions. The only difference with online reference is that instead of the reference librarian manually searching the catalog, it is done automatically. But, whether the material is retrieved manually or by automation, it is still analyzed by a human being, not machines. True, the machine gives instant access, but it cannot determine whether the item in question will supply the answer. Only the reference librarian reviewing the material can.

There are many factors common to any system you choose to automate. After an analysis of the present system, you should be able to decide whether a batch system or online will meet your needs. Several reasons could enter into the final decision. One may be because you may not be able to convince the people with the money to purchase the equipment that you need online access in-house.

If you are forced or by decision choose to batch, which end product do you plan? Will microform copy meet your needs, or will it have to be paper? To decide this, you should consider the cost of reproduction of the paper catalog, and whether the computer facility you have chosen has the capability for com production or access to com facilities.

Also, if you utilize the organization's computers, what priority will be available? What level of classification can be stored? If you are automating

a catalog which is classified, you are going to need confidential/secret classified storage.

When setting up the design of the system, most programmers approach the problem in the same way as any other item to be programmed. There are not many programmers or systems analysts who have had experience with library systems. They may not allow for the unbelievable amount of storage it will take for the information, nor will they realize the variable information to be stored. Some of the information is in a set pattern, but most will not be. Do not attempt to fix an average length or maximum length for a field such as the author or title, because an exception will always turn up. Try to think of the exception to everything you say. Remember that most library information comes in fixed and variable lengths, is both alphabetical and numerical, will include English and foreign languages, etc. Of course, it helps if you can find a programmer with previous library experience or a consultant who can help. When considering problems, one of the major ones is whether to input past and present data at the same time or to do the present now, the past later. Perhaps you will decide to automate from this point and not to automate the past.

The preliminary planning you do can prevent you from becoming one of the horror stories. Do make the programmer give you a written description of the program. He/she may be gone next year when you need to alter it. Try not to build a more elaborate system than needed, as it is more difficult to maintain. Do attempt to use standard codes, terms, and formats. Attempt to predict growth of the files and indices as accurately as possible. Try to make the input to the system as convenient to humans as possible. Staff changes can tear apart a system if the input is too complicated to be constantly relearned. Try to talk to anyone who has automated to see what problems they had or accidently built into the system. Remember that the machines the program runs on today may not be there tomorrow. Be sure an interface program is possible. There are a number of firms who can provide help in a feasibility study for automation. Many of these same firms will also provide manpower for the conversion to automation.

Since most of you are involved in libraries that are short of staff and money, you might be able to share the cost of automating with another library. The Federal Library Committee and, in particular, Mae Powers of that committee could give you guidance in that area. It might also be possible that the systems you want to automate may have already been designed for another federal library. A list of libraries which have been involved in automating some part

87

of their system appears in the Guidelines for Library Automation; Case Studies in Library Computer Systems, and, in particular, Automation and the Federal Community. The items mentioned are included in the bibliography.

For anyone who is considering automation in the near or distant future, read all the books, reports, magazines, and take all the courses available. This will familiarize you with the terminology so you can communicate with the people who will design your system. In the bibliography, I have cited some magazines in the field and some services which evaluate computer equipment, such as the Auerbach Reports.

Since all of you are DOD librarians, you should be aware that automation equipment and money are controlled. To buy or lease equipment or spend money for automation purposes, you have to get permission. There are approximately thirty instructions per service out on how to do this. Each organization has someone who monitors the ADP program. You should find out who in your organization does and go see them. Most are quite helpful.

I have not attempted to specify whether a library should use a batch system, an online system on a computer available to them, or have their own minicomputer. This is dependent on the size of the system or, in some cases, what you can convince people you need. Remember, however, that today there is a vast amount of equipment on the market with tremendous capacity to handle library needs. Do not decide for or against minicomputers until you have investigated the possibilities. These are the wave of the future.

Automation is not the solution to all problems and may not be for yours, but the only way you find this out is by a study of the present system. Whether you decide to automate or not, this type of study usually has side benefits. You may find yourself changing a system which may then satisfy the demands of your library without automation.

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American Libraries. American Library Assn., Chicago, Illinois

Byte. Byte Publications, Inc., Petersborough, N.H.

Computers & Information Systems. Cambridge Scientific Abstracts, Inc.,
   Riverdale, Md.

Government Data Systems. United Business Publications, Inc., 750 Third Avenue,
   New York, 10017

IMC Journal. International Micrographic Congress, San Diego, Calif.

Information and Records Management (IRM). International Micrographics   .
   Congress, San Diego, Calif.

Infosystems. Hitchcock Publishing Company, Wheaton, Illinois

Journal of Micrographics. National Micrographics Assn., Silver Spring, Md.

The Library Quarterly. University of Chicago Press, 5750 Eillis Avenue,
   Chicago, Ill. 60628

Minicomputer News. Benwill Publishing Corp., Boston, Mass. 02215

Online. Online, Inc., Dept. 1A, 11 Tannery Lane, Weston, Conn. 06883

Special Libraries. Special Library Association, N.Y., N.Y.

REPORTING SERVICES WHICH RATE AUTOMATION EQUIPMENT

Auerbach Data Communications Reports, Data Handling Reports, Minicomputers
   Reports, Software Notebook, Standard EDP Reports, Time Sharing Reports.
   All available from Auerbach Info, Inc. 121 N. Broad Street, Philadelphia,
   Pa. 19107

Datapro Reports. Available from Datapro Research Corp., 1805 Underwood Blvd.,   _
   Dehan, N.J. 08075

COMPANIES WHICH ACT AS CONSULTANTS OR SELL SERVICES FOR AUTOMATION

Costabile Assn., 4720 Montgomery Avenue, Bethesda, Md.
Boeing Computer Service, 7598 Coleshire Drive, McLean, Va.
Dataflow Systems, Inc., 7758 Wisconsin Avenue, Bethesda, Md.
Resources on Request, Reston, Va.
Computer Science Corp., 2511 Jefferson Davis Highway, Arlington, Va.
Informatics, Inc., 7926 Jones Branch Drive, McLean, Va. or 6011 Executive Blvd,
   Rockville, Md.
Infcronics, 55c Newton Road, Littleton, Ma. 01460

NON-CARD CATALOGS

Kathy Wright
Naval Ocean Systems Center

This morning I want to talk briefly about the production of non-card catalogs. This is an important consideration for libraries planning to automate. As most of you probably know, LC is planning to close its main card catalog in 1980, since it hopes to have most of its current cataloging in machine-readable form by that time. There is now momentum away from traditional card catalogs and toward such automated alternatives as the printed book catalog, COM, and online catalogs.

Many libraries are now getting away from cards. For example, the literature is full of articles about public libraries that now have COM catalogs. The use of non-card catalogs is an important application of computers and has many advantages:

-- One can produce copies for member libraries.

-- One can produce multiple copies for one library for better access.

-- One saves staff time because there is no filing.

Many libraries have gone one step further and converted to COM. COM has many advantages:

-- It saves space.

-- It increases accessibility of the catalog.

-- It facilitates easier retrieval.

-- It saves printing and postage costs when compared to printed catalogs.

An example of the COM catalog is the NOSC reports catalog, which contains 26 fiche. The costs are $31.20 for a master set ($1.20 per fiche) and $1.82 for a duplicate set ($.07 per fiche). Many indices are presently on COM, for example the GPO and NAVSUP indices. Both BALLOTS and OCLC now supply tapes that can be used to produce either book or COM catalogs. NOSC is considering these options.

The third type of automated catalog is the completely online catalog. This alternative is obviously more expensive than either the printed or COM catalog, but it does offer flexibility in searching.

In practice, a library might want to select a combination of online and printed or COM catalogs.

ECONOMICS OF RESOURCE SHARING IN MILITARY LIBRARIES
TASK GROUP REPORT

Task Group Leader: R. Paul Ryan
US Army Ballistics Research Lab.

Outline of Sessions

1. Interlibrary Loan

2. Cost Recovery of Services
   a. Within DOD
   b. Outside the Federal community

3. Reaffirmation of the commitment to resource sharing among DOD libraries and statement of the need for cooperation with the "civilian" community--a recommendation to MLW

4. Cooperative Acquisition Agreements and Coordination of Procuremeit Activities including Documentation of Problems
   a. between DOD libraries
   b. between DOD and the "civilian" community

5. Central DOD source for services little used at the installation level

6. Resource Sharing Guidelines to be promulgated through such activities as the Federal Library Committee Pre-White House Conference

7. Presentation of
   a. Air Force CENCARD System
   b. Army TRADOC TRALINET

Recommendations to the Military Librarians Workshop

Since we are striving collectively to eliminate all barriers to the free flow of information, the Task Group on the Economics of Resource Sharing in Military Libraries recommends to you as a group, and more particularly to the MLW Executive Board, that they request the DOD to issue a reaffirmation of the DOD community's commitment to the goals of resource sharing among libraries and information activities. This reaffirmation should remind us that we must work collectively in all supportive areas within the Federal sector, and that we must also join the civilian community for complete participation.

This participation, restricted only by fiscal limitations, could include the establishment of resource directories, participation in surveys, promotions of library activities during such periods as National Library Week, and attendance at workshops and conferences, the White House Conference on Libraries and Information Services and the FLC-sponsored Federal Libraries Pre-White House Conference in February.

The DOD information community should be encouraged to join various library networks and local library groups. In addition, we must coordinate our efforts with those of such groups as FLIRT and AFLIS, which share our interest in resource sharing. These activities would lead to reciprocal benefits of value to both the total library community and the DOD component.

MICROFORMS AND THEIR EFFECTS ON LIBRARIES

Task Group Leader: Jean Dickinson
Task Group Recorder: Helen McClaughry

Agenda

Tuesday, October 31   -- Why Microforms? Goals of the Task Group.
Advantages and Disadvantages of Microforms.

Wednesday, November 1 -- Selecting Microform Equipment.
Economics of Microforms.
Selecting, Acquiring, Maintaining, Weeding.

Thursday, November 2   -- Selling Microforms to Management and Patron.
Summing Up.

Discussion

The generic term "microforms" includes microfilm, microfiche, microjackets, microfilm cassettes and microfilm cartridges.

Some of the advantages of microforms in libraries are:

1. Space savings
2. Preservation of materials
3. Reduced costs of mailing
4. Improved access to items unavailable in hard copy
5. Minimized acquisition and processing costs
6. Economical duplication
7. Microforms are available when needed
8. Savings realized by microform magazine subscriptions
9. Interlibrary loans can be made on fiche for a small charge

The disadvantages of microforms in libraries are

1. Difficulty in cultivating user acceptance
2. Must have machines to read it
3. Equipment breakdowns affect service
4. Maintenance not always readily available
5. Film is misused
6. Copies often of poor quality
7. Updating difficult
8. Easier to misfile

The disadvantages of film format are:

1. Loading is more difficult
2. Film tears
3. Film needs to be spliced and repaired

The advantages of cartridges are:

1. Film is not handled
2. Keeps dust off
3. Easier to mail

When selecting microform equipment:

1. Carefully determine needs
2. Read appropriate books, keep up with ALA Library Technology Reports, Microform Review, Bowker publications
3. View equipment at SLA, ALA exhibits
4. Sell the parent organization on microforms
5. Choose equipment which is interchangeable within the library and compatible with existing microform programs in your institution
6. Consider leasing
7. Consult other librarians who have experience in this area; don't rely exclusively on the representations of the salesman

In developing a maintenance program:

1. Be familiar with the warranty
2. Know how to make simple repairs
3. Post simple instructions for users

When analyzing the economics of microforms. consider:

1. The cost of equipment – purchase, lease
2. Supplies for microform reader/printer – toner, paper, lamp replacements, etc.
3. Storage cabinets
4. Cost of microforms – usually less than paper copy
5. Other costs like cataloging, weeding, etc. are similar to those incurred for paper copies
6. Housing of microform – usually less than paper copies

When selling management on microforms, emphasize:

1. Cost savings
2. Materials always on hand
3. Space savings
4. Importance of reader-printer equipment
5. Making portable readers available for improved service

Recommendations

1. Headers should be improved for easier reading and filing
2. Quality standards such as those of the Defense Logistics Study Information Exchange need to be established and enforced
3. Military librarians need general meetings on microform equipment to which vendors could be invited and in which systems could be evaluated
4. Microform producers should be encouraged to improve quality control

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SHARED BIBLIOGRAPHIC SYSTEMS

Task Group Leader: Abbott Martin
Naval Sea Systems Command

Agenda

Tuesday, October 31	Introduction	Christine Eynon Wright Patterson AFB (8-785-5781)
	BALLOTS	David Brunell Bibliographic Center for Research (303-388-9261)
	Librarian's View of BALLOTS	Video Cassette
Wednesday, November 1	OCLC	Dan Lester University of New Mexico (505-277-6401)
	CENCARD	Tony Dakan Air Force Manpower and Personnel Center (8-487-3037)
	TRALINET	James Byrn Army TRADOC (8-680-3017)
Thursday, November 2	DDC-SBIE	Pat McConnell DDC (8-284-7633)
	GIDEP	Edwin Richards Navy Fleet Analysis Center (8-933-4677)
	DIAOLS/COINS	Herb Holzbauer DIA (8-222-5311)

SHARED BIBLIOGRAPHIC SYSTEMS

The Task Group on Shared Bibliographic Systems studied some of the more common bibliographic systems utilized in network situations. Emphasis was placed on cataloging systems used by or having potential for DOD libraries/information systems. OCLC is currently in use by military libraries, while BALLOTS remains in a difficult procurement cycle. DDC's shared cataloging system holds considerable promise but will remain experimental for some time. Two DOD systems were analyzed. The Air Force's CENCARD system has been proving its worth for years, while the Army's high-potential, comprehensive TRALINET system is undergoing intensive development. The intelligence community's data manipulation and retrieval capabilities are impressive. DIA's DIAOLS/COINS system was used as the starting point for discussion. As an example of technical data management, the GIDEP program was reviewed. The GIDEP program reports a 14 to 1 return in dollar investment. Information system development in the future may require this type of documented worth for continuing support.

Christine Eynon began the workshop by using the Wright Patterson Technical Library as a model to demonstrate the effectiveness and feasibility of using network or cooperative resources while maintaining a system of records of internal interest. The library utilizes OCLC, major federal document retrieval systems (DDC, NTIS, NASA), DIALOG, sources of information from private industry, and local library cooperatives such as the Miami Valley Library Network. Reports not appropriate for external use are input to the RCCN retrieval base.

Using the preceding session as motivation, the Task Group turned to the individual systems to be examined. David Brunell from the Bibliographic Center for Research in Denver presented a detailed description of the BALLOTS system, which included its beginning, growth, and present status. Currently BALLOTS is one third the size of OCLC and growing at about one fourth the rate. However, swings of major cooperatives such as the Research Library Group can change relative size and growth patterns very quickly. Although roughly equivalent to OCLC in operation and function, BALLOTS offers several advantages over OCLC. One is the ability to perform query-type searches between and within tags using Boolean operators. Another advantage is improved quality control in data base management.

To understand, implement, and use BALLOTS and similar systems properly, considerable effort is required. Reading preparation could run to several thousand pages. This leads one to believe that dependence on outside advice

from brokers and others may be necessary.

In discussing the merits of various systems, one task group member pointed out that use of a particular system may not depend solely on technical merits. It will probably be advantageous to join the system to which libraries similar to one's own already belong.

Dan Lester, Assistant Dean for Technical Services at the University of New Mexico General Library, discussed OCLC. OCLC is brokered through networks such as SOLINET. There are also some independent members not affiliated with networks. As of April, 1978, OCLC member military libraries totaled 54. OCLC has 1400 to 1500 member libraries all together, and 2400 terminals have been installed.

At the present time, the OCLC system is used primarily for cataloging purposes, pre-order searching, and for interlibrary loans. In contrast to BALLOTS, OCLC does not offer online subject searching. Some of the problems with OCLC are duplication of records and quality control. The task group showed particular interest in the interlibrary loan test system. There are over 50 institutions participating in the test system. Using this system, a library will search OCLC for a particular title it needs. The library inputs from whom it wants to borrow the needed title. Several choices can be input in order of priority. The computer will send a message to the first library on the list. If the receiving library answers the request negatively, the computer sends a message to the second library on the list. A big advantage in using OCLC for interlibrary loans is the elimination of paperwork and telephone calls.

CENCARD
Summary by Tony Dakan
Air Force Manpower & Personnel Center

CENCARD, the acronym for Centralized Cataloging and Card Reproduction, was begun when a contract was awarded to Trinity University, San Antonio, Texas, on 21 October 1974. CENCARD was built onto the existing MARCIVE system, which Trinity initiated in 1968, and is simply an Air Force contract to provide customized computer cataloging services, based on the MARC and CATLINE tapes. Thus, CENCARD is synonymous with MARCIVE.

Invoices for CENCARD services for November 1974 show a total of 43 Air Force libraries participating. The latest invoice received, for September 1978, shows a total of 143 Air Force libraries participating. Only 12 of the 157 account-numbered Air Force libraries are not using CENCARD. Of that number,

the majority are technical libraries or academic libraries using OCLC and/or their own cataloging departments. A few (4) are base libraries who receive cataloging services through other libraries or library service centers. Two of the four libraries receive CENCARD service through a library service center.

At the time the CENCARD program began, it was the only known source to provide customized computer cataloging service. A one-year test period proved the feasibility of the program, and the contract with Trinity has been renewed annually. The test period showed real savings in cataloging time. Initial scepticism was quickly overcome by the quality product provided by Trinity.

To date, (as of 30 September 1978), 2,425,462 cards, 525,713 labels, 32,708 acquisition lists, and two bibliographies (310 entries, and 25,221 entries) have been produced. Total cost to date: $179,424. The hit rate has remained uniformly high: 1974 - 82%; 1975 - 84%; 1976 - 81%; 1977 - 81%; and 1978 - 83%. Turnaround time from receipt of card orders is currently 24 hours. Delivery time, of course, is dependent on the postal service. The CENCARD program has been reduced to bare-bones efficiency, with a minimum of restrictions on librarians, and a high degree of responsiveness on the part of Trinity. The program is only limited by user imagination, since profiles can be changed at any time, at no cost to the Air Force.

The contract with Trinity provides profiling at no cost at any point. The only cost of the program is for actual cards, labels, lists, and bibliographies produced. No charge is made for searches that result in misses, except when CATLINE is accessed. Then, a .177 cent surcharge on hits is made.

The cost of CENCARD products is competitive with other systems. Cards are 7.5 cents each, labels are 2 cents for each set of three, and acquisition lists and bibliographies are 4 cents per title. These prices apply to products from any data base accessed. Currently, the program includes MARC tapes for monographs and serials, and CATLINE tapes. Service will soon be expanded to include cataloging from USGPO Monthly Catalog tapes as well. Costs, except for CATLINE surcharges, are constant.

Negotiations are currently under way with Ember Associates, San Diego, to allow Air Force librarians to input original cataloging into the Trinity data base. Ember will scan, format, and submit records on tape to Trinity, who will in turn produce cards, labels, etc., and integrate the record into the individual library data base. The Air Force will "buy into" San Antonio College's EMBER profile, so the only cost to libraries will be 50-60¢ per record. Billing by Ember will be through Trinity against the Air Force's

101

CENCARD contract.

At the present time, limited pre-cataloging (classification number, location code, etc.) by libraries is possible at the time cards are ordered. In addition, the MARCIVE tapes (and CATLINE too) can be searched and a single card produced for any library. Since the record for any card printed becomes a part of that library's data base, it is possible to build a complete (or nearly complete) data base at 7.5 cents per title. With modification of the contract to provide Ember's services, any Air Force library could accomplish this.

Access to MARCIVE tapes is by LC or ISBN numbers. Access to CATLINE tapes is by LC, ISBN, or NLM catalog citation number. At present, access to the MARCIVE serials tapes is by LC number only, but soon, the ISSN will also be available. Initially, access to the USGPO tapes will be by monthly catalog entry number. Soon, access can be by LC, Superintendent of Document Class Number, or by stock number.

Card orders are placed by librarians in any form they wish, so long as they are identified with the library account number. Monthly billing is received by my office, where it is spot-checked against receipt cards shipped with each shipment of cards to libraries, and mailed in to me. The error rate on billing is so minimal that this verification seems hardly necessary.

While there are limitations to the CENCARD program, we feel that it is a viable alternative to online cataloging services, and are pleased to report that it is being used by the majority of our libraries, with much satisfaction.

MARCIVE services, comparable to CENCARD, are available from TRINCO, Inc., P.O. Box 12613, San Antonio, Texas 78212. Inquiries should be addressed to Mr. John L. Cook, Library Consultant for MARCIVE, at that address.

James Byrn of the Army Training and Doctrine Command spoke about TRALINET, the TRADOC Library Information Network. He began by explaining that there are three main types of libraries within the TRADOC Command. These are: (1) post recreation services libraries, (2) school/academic libraries, and (3) technical libraries. Some of the major problems facing TRADOC libraries are:

-- the growth of knowledge and expanding amounts of library materials

-- the increasing costs of library materials and services

-- budgeting and manpower constraints on library programs

102

-- increasingly sophisticated information demands

-- excessive duplication and non-standardization of manpower efforts
    devoted to particular library operations and services

To cope with these problems, TRALINET was developed.

At the outset, a TRALINET study team was created. The objectives of the
team included:

-- Preparation of the TRALINET program document and five-year implementa-
    tion plan

-- Design, implementation, and testing of various prototype models in a
    "production" environment

-- Establishment of a permanent TRALINET Center

One of the main priorities for network development is cataloging and access
to a bibliographic data base. The TRALINET Shared Cataloging Prototype will
include evaluation of many factors, including:

-- number of titles searched

-- percentage of original cataloging being generated from field activities.

Determination will be made of the optimum number of libraries to be
accomodated per OCLC terminal. Attention will be focused on the quality of
printer/tape cassette units as well as the quality of products from OCLC and
the quality of products from TRALINET. Consideration will also be given to
continued training requirements for use of the system.

Mr. Byrn went on to speak about the objectives of the network approach
in acquisitions and procurement. Delays in purchase and receipt of materials
at local levels should be significantly reduced. Much of the labor intensity
in current procurement procedures at the base level should also be reduced.
Through collective "volume buys", higher discounts will be received than can be
locally negotiated. Library managers will receive accurate and timely
financial and management statistics.

Mr. Byrn concluded his presentation by outlining the responsibilities of
the TRALINET Systems Center. The Center will insure common standards, particu-
larly in technical, telecommunications, and ADP operations. Furthermore, the
Center will insure quality control of data input and output of the network. It
will be up to the Center to provide software, computer, and telecommunications
technology which are not cost justifiable on an individual library basis. The
Center will minimize unnecessary duplication of effort on investment in systems
design, equipment acquisitions and manpower required to upgrade existing library

operations. Lastly, the center will insure that TRADOC libraries receive equitable representation in headquarters management decisions and budgeting processes.

The DDC Shared Bibliographic Input Experiment was introduced as an effort to reduce cost, reduce staff, and accelerate processing. In its first phase, DDC-affiliated libraries are acting as test sites to set up standardized procedures, study time allocation, and input cataloging data for evaluation at DDC. The COSATI guidelines for descriptive cataloging are being followed.

Phase II calls for the inputting of documents from the retrospective files of participating libraries, documents which never reached DDC when originally published. Phase III calls for the input of descriptive information regarding controlled documents not available through DDC. The searcher interested in obtaining such a document would receive information from the online system naming the controlling office and procedures for submitting a request.

GIDEP (Government-Industry Data Exchange Program) is a cooperative activity of government and industry to share technical information regarding design, research, development, engineering, and procurement programs. The system is government operated, but participation is open to any organization which uses or generates systems and equipment information. Participants in GIDEP are presently provided access to four major data banks:

-- The Engineering Data Bank (EDB) contains engineering evaluation and qualification tests reports, nonstandard parts justification data, parts and materials specifications, manufacturing processes, failure analysis data, and other related engineering data on parts, components, materials, and processes. The bank also includes a section of reports on specific engineering methodology and techniques, air and water pollution reports, alternate energy sources, and other subjects.

-- The Reliability-Maintainability Data Bank (RMDB) contains failure rate/mode and replacement rate data on parts and components based on field performance infor tion and/or reliability demonstration tests of equipment, subsystems and systems. The data bank also contains reports on theories, methods, techniques, and procedures related to reliability and maintainability practices.

-- The Metrology Data Bank (MDB) contains related metrology engineering data on test systems, calibration systems, and measurement technology and test equipment calibration procedures, and has been designated as a data repository for the National Bureau of Standards (NBS) metrology related data. This data

interchange also provides a Metrology Information Service (MIS) for its
participants.

-- The Failure Experience Data Bank (FEDB) contains objective failure
information generated when significant problems are identified on parts,
components, processes, fluids, materials, or safety and fire hazards. This data
bank includes the ALERT and SAF-ALERT system and failure analysis information.
Organizations may participate without charge in any or all of the above data
banks by agreeing to abide by pre-established requirements for participation.

For further information on GIDEP systems, contact the Director, GIDEP
Operations Center, Corona, California 91720, or telephone (714) 736-4677
or AV 933-4677.

Herb Holzbauer of the DIA library described the information retrieval
system operated by and for the intelligence community. All current finished
intelligence publications in the DIA library are indexed in the computerized
Source Document Index (ASDIA) files which are accessed through the DIA Online
Network (DIAOLS) and through the Community Online System (COINS). Intelligence
reports (raw data) can be accessed through the same networks by using the
Intelligence Report Index Summary (IRISA) files.

These systems consist of a mix of online and batch. Online is reserved
for the most current (2 years) information. The total file contains one-half
million intelligence reports.

The ASDIA files serve as an automated index to all library holdings
excluding intelligence reports. Specific types of intelligence documents
included in this file are all DOD intelligence studies, scientific and
technical intelligence studies, handbooks, factbooks, estimates, and order of
battles, held by the library. Originators of these documents include most CIA
and State intelligence publications, Federal Technological Division (FTD),
Foreign Science and Technology Center (FSTC), Missile Intelligence Agency (MIA),
Medical Intelligence and Information Agency (MIIA), Naval Intelligence Support
Center (NISC), and unified and specified commands.

Access methods, query operators and samples, data element (tag) definitions
and other valuable system information is contained in Guide to the Defense
Intelligence Agency Library's Automated Intelligence Files (ASDIA & IRISA).
Information on this publication can be obtained by calling DIA's Central
Reference Division, (202) 692-5494 or AV 222-5494.

CENSUS OF SPECIAL RESOURCES

REGISTRY OF LOCALLY DEVELOPED SPECIALIZED TOOLS FOR MILITARY LIBRARIES
SPONSORED BY THE MILITARY LIBRARIANS WORKSHOP

The following pages are a representative sample of the type of information to be incorporated in a proposed Census of Special Resources. This sample was generated through the efforts of a special Task Group at the 1977 Military Librarians' Workshop.

The charge of this Task Group was to establish the means by which a central registry of locally developed specialized tools might be compiled. After much discussion, the group determined that a project for identifying librarians and information scientists with particular specialities should also be included in their considerations. A fourth main grouping, special collections, has been tentatively added.

Special Resources was defined by the Task Group as publications (to include also TV tapes, slide/audio productions, etc.), procedures, or personnel resources which are available in individual libraries and which are not generally known.
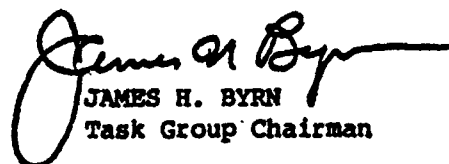
The group considered many aspects of the problem, to include the very real possibility that this just might be another exercise in futility which would either produce another meaningless statement of good intentions or, at best, duplicate an already existing list. It was agreed that, to the group's knowledge, such a listing was not available at this time. This included consideration of all known directories of special libraries since the thrust of their contents tended to emphasize the basic speciality of their collection as opposed to those types of resources defined earlier.

With a consensus thus established that such a project was indeed worthwhile, the group then plunged into deliberations as to examples of what types of information were desirable for inclusion and a vehicle for obtaining this information. All agreed that another questionnaire foisted upon an unsuspecting library world was not only undesirable, but counter-productive in its probable results. After further discussion, the group decided to recommend that a general call for the desired information be published through the Special Libraries Association (SLA) Newsletter, Federal Libraries Newsletter, etc. This was done with disappointing results insofar as concerns number of entries received.

The final question to be resolved by the group was how to collate any such information obtained and make it readily available to the world of military libraries. It was generally agreed that the ultimate goal would be continuous input into a data bank, such as Defense Documentation Center (DDC), where constant updating would be possible. A more pragmatic course was adopted for the immediate future in which the initial information would be compiled into monograph form and then forwarded to DDC for the assignment of an AD number. The initial response to this document would then determine whether the data bank approach should be further pursued.

106

Undaunted (but somewhat chagrined!) by the lack of response to the previously mentioned public call, the Continuing Committee of the Task Group elected to publish this sample for distribution at the 1978 Workshop. This has been done with the fond (and highly optimistic) hope that it will trigger a vast outpouring of entries to be included in the finished product. Surely, you won't disappoint us!

My thanks to my fellow members of the Task Group and especially to the Continuing Committee members—Janice Weston, John Cummings, and Herb Holzbauer.

JAMES H. BYRN
Task Group Chairman

CENSUS FORMAT

1. Information was divided into four main groupings (instead of the three originally proposed!):

   a. Personnel Resources (PsR)

   b. Procedures or Tools (P or T)

   c. Published Resources (PbR) (includes TV tapes, slides, audio, etc.)

   d. Special Collections (SC)

2. Subject headings list is attached. At this point, it does not follow any particular authority (Sears, etc.). This list is representative only and not complete by any means.

3. Proposed published format would be as follows:

   a. Section I: Main entry cited under appropriate main grouping (PsR, PbR, P or T, SC) alphabetically.

   b. Section II: Repeat of main entry under appropriate subject headings (alphabetically).

SUBJECT HEADINGS

Abstracts	Civil War
Indexes	Lincoln
Periodicals	Reconstruction
Bibliography	Cataloging
Statistics	Data Bank
Science	Research and Development (R&D)
Thesaurus	Procurement
Subject Headings	Logistics
Intelligence	Management Information
Rivers	Biography
Archives	Book Reviews
Communications	Technical Reports
Electronics	Nomenclature
Obsolete Manuals	Micrographics
Manuals	Standards
Cold Regions	Automation
Test and Evaluation	Serials
Military Aviation	OCLC
Army Aviation	Weapons
Personal Papers	Congress
Unit Histories	Documents
Lessons Learned	Maps
After Action Reports	Military Justice

CENSUS OF SPECIAL RESOURCES

SECTION I

A. Personnel Resources (PsR)

1. Acquisition and Implementation of Information Data Banks
    Mr. Jim Greenhalgh
    Chemical Systems Lab Library
    Edgewood Arsenal
    Abderdeen Proving Ground, MD 21005

2. Civil War Subject Specialist
    Dr. Richard Sommers
    Archives Section
    Military History Institute
        (AV 242-3601)

3. Creation of Automated Serials Systems
    Mr. Jim Greenhalgh
    Chemical Systems Lab Library
    Edgewood Arsenal
    Aberdeen Proving Ground, MD 21005
        (AV 584-2822)

4. Micrographics - DOD Standards
    Commander Kane
    RDS-3
    Defense Intelligence Agency
    Washington, D. C. 20301
        (AV 222-6677)

5. Micrographics Implementation
    Mr. James Byrn
    Administrative Librarian
    HQS TRADOC, (ATAG-MSD)
    Fort Monroe, VA
        (AV 680-3017)

6. OCLC Implementation
    Mrs. Ruth Hodge
    U. S. Army War College Library
    Carlisle Barracks, PA 17103
        (AV 242-3860)

B. Procedures or Tools

1. Biography File, primarily of Flag and General Affairs.
    Ms Lois Leach
    Armed Forces Staff College Library
    7800 Hampton Blvd.
    Norfolk, VA 23511

2. Government-Industry Data Exchange Program (GIDEP)
    Ms Roselyn Phillips
    Tooele Army Depot (SDSTE-QAC)
    Tooele, Utah 84074
        (AV 790-2644 or (801) 833-2644)

3. Index to Book Reviews of Interest to the Military
    Ms Lois Leach
    Armed Forces Staff College Library
    7800 Hampton Blvd.
    Norfolk, VA 23511

4. Joint Electronic Type Designation System (JETDS) Literature
    Mr. Paul A. Tolovi
    Defense Communications Agency
    Technical Library, Code 205
    Washington, D. C. 20305
        (AV 222-2244, 2468)

5. LC "U" Schedule and Subject Headings Expansion
    Mrs. Martha Relph
    Morris Swett Library
    U. S. Army Field Artillery School
    Fort Sill, OK 73503
        (AV 639-4525)

6. Management Information System for "Lessons Learned," pertaining to
    Deficiencies or Improvements concerning Subsystems, Materials,
    Processes or Procedures which impact on systems being acquired.
    Ms Jeanne Zekowski
    Library, Air Force Acquisition
    Logistics Division
    Wright Patterson AFB, OH 45433
        (AV 785-3222, 3578)

7. Periodical Index covering every periodical title received, 1948-1970,
    at the National War College. Arrangement by Author, Subject, and
    Title. Foreign Policy of U. S. is special area.
    Mr. Thomas Russell
    National Defense University Library
    Fort McNair
    Washington, D. C. 20319

B. Procedures or Tools (Contd.)

   8. Reference Index File to Topics of Military, Political, and International
      Interest appearing in periodicals. Also subject headings used.
         Ms Lois Leach
         Armed Forces Staff College Library
         7800 Hampton Blvd.
         Norfolk, VA 23511

   9. Retrieval System for Technical Reports
         Ms Kathy Wright
         Naval Ocean Systems Center Tech.
         Library
         Code 4473
         San Diego, CA 92152
            (AV 933-6171 or (714) 225-6171)

   10. Retrospective Periodical Index File (Approximate Dates 1860-1950)
         Mr. Les Miller
         Morris Swett Library
         U. S. Army Field Artillery School
         Fort Sill, OK 73503
            (AV 639-4525, 4477, and 2982)

C. Published Resources

   1. Abstracts of Master of Military Art and Science (MMAS) Theses and
      Special Studies. An annual compilation of abstracts of papers prepared
      by U. S. Army C&GSC Students.
         U. S. Army Combined Arms Library
         U. S. Army Command and General Staff College
         Ft. Leavenworth, KS 66027

   2. Air University Abstracts of Research Reports (yearly)
         Air University Library (AUL/RLX)
         Maxwell AFB, AL 36112
            (AV 875-7223)

   3. Air University Library Index to Military Periodicals (AULIMP)
      (Quarterly).
         Air University Library
         Maxwell AFB, AL 36112
            (AV 875-2347)

   4. Defense Intelligence System Thesaurus.
         Ms Pauline Wood
         Defense Intelligence Agency Library
         Central Reference Section
         Washington, D. C. 20301
            (AV 222-5575)

C. Published Resources (Contd.)

5. European Scientific Notes (ESN). Monthly Newsletter devoted to current scientific actions of UK and European Academic and Government Sponsored Establishments.
    Mrs. Victoris Hewitson, Librarian
    Office of U. S. Naval Research
    Branch Office
    London, Box 39
    FPO New York 09510

6. Guide to Selected Student Research Elements 1971-1974 plus 1975 NRI. A listing of selected papers prepared at the USAWC to include a Subject Index.
    Library
    U. S. Army War College
    Carlisle Barracks, PA 17103

7. Index to the Field Artillery Journal, Author, and Subject Index, January 1940 through December 1976. Volumes 30 through 44.
    Mr. Lester Miller, Jr.
    Morris Swett Library
    U. S. Army Field Artillery School
    Fort Sill, OK 73503
       (AV 639-4477, 2982, and 4525)

8. Index to the Field Artilleryman (Artillery Trends), 1957-1972.... Number 1-50.
    Mr. Lester Miller, Jr.
    Morris Swett Library
    U. S. Army Field Artillery School
    Fort Sill, OK 73503
       (AV 639-4477, 2982, and 4525)

9. Military Casualty and Statistical Data Associated with Wars, a two-part bibliography.
    Lester Miller, Jr.
    Morris Swett Library
    U. S. Army Field Artillery School
    Fort Sill, OK 73503
       (AV 639-4477, 2982, and 4525)

10. Research Project Abstracts, a compilation of abstracts of research projects prepared by the resident school classes of the Industrial College of the Armed Forces (ICAF).
    Library
    National Defense University Library
    Fort McNair
    Washington, D. C. 20319

D. Special Collections

1. After Action Reports for Armored Units in WWII.
    U. S. Army Armor School Library
    Bldg. 2369
    Fort Knox, KY 40121

2. Archives and General Collection in the Fields of Army Aviation and
    Military Aviation.
    Aviation Training Library
    P. O. Drawer O
    Fort Rucker, AL 36362

3. Archives, Unit Histories (Especially Field Artillery), Obsolete
    Military Manuals, Lessons Learned, and After Action Reports.
    Mr. Les Miller
    Morris Swett Library
    U. S. Army Field Artillery School
    Fort Sill, OK 73503
       (AV 639-4477, 2982, 4525)

4. Archives, Unit Histories, Personal Papers, Obsolete Military Manuals.
    Ms. Joyce Eakin
    U. S. Army Military History Institute
    Carlisle Barracks, PA 17103

5. Archives of all Electronics Command (Signal Corps) Literature Dating
    Back to the Early 1900's
    Tech Library, ECOM Office Building
    U. S. Army Electronics Command
    Fort Monmouth, NJ 07703

6. Consolidated Collection concerning Military Justice to include all
    service regulations, decisions, and holdings of all District Courts,
    the U. S. Court of Military Justice, and Decisions and Holdings of the
    Courts of Military Review for all services.
    Ms Barbara Goff
    Public Law Education Institute
    Dupont Circle Bldg, Suite 610
    1346 Conn. Ave., N.W.
    Washington, D. C. 20036
       202-296-7590

7. D.O.D. Map Support
    Defense Mapping Agency
    Attn: DDCP
    6500 Brookes Lane
    Washington, D. C. 20319

8. Foreign Weapon Information
   Foreign Science and Technology Center
   Attn: AMX-AMST-IS One
   220 7th St., N.E.
   Charlottesville, VA 22901
      (AV 274-7513)

9. Historical Material on the Mississippi River.
   Tech Library
   USAE Lower Mississippi Valley Division
   P. O. Box 80
   Vicksburg, MS 39180

10. Information on Documents from the House of Representatives
    House Documents Room
    U. S. Capitol Bldg.
    Washington, D. C. 20515

11. Military Aviation
    Ms Nina Jacobs
    Base Library
    Travis AFB, CA 94535
       (AV 837-5254)

12. Personal Papers of Assorted Persons Associated with the U. S. Military
    Mr. Thomas Russell
    National Defense University Library
    Fort McNair
    Washington, D. C. 20319

13. Personal Papers of General Bruce C. Clarke
    U. S. Army Engr School Library & LRC
    Thayer Hall, Bldg 270
    Fort Belvoir, VA 22060

14. River Basin Studies
    U. S. Army Engr District, St Louis
    210 N. 12th St.
    District Library, Room 944
    St. Louis, MO 63101

15. Special Collection Concerning Abraham Lincoln, the Civil War, and
    Early Reconstruction
    Ms Cynthia Miller
    The War Library and Museum of the Military Order of the Loyal Legion
    of the United States
    1805 Pine Street
    Philadelphia, PA 19103

16. Special Collection pertaining to operations in cold regions.
    Library (STECR-TD-Library)
    Cold Regions Test Center
    APO Seattle, WA 98733

ABSTRACTS
1. <u>Abstracts of Master of Military Art and Science (MMAS) Theses and Special Studies.</u> An annual compilation of abstracts of papers prepared by U. S. Army C&GSC Students.
   U. S. Army Combined Arms Library
   U. S. Army Command and General Staff College
   Fort Leavenworth, KS 66027

2. Air University Abstracts of Research Reports (yearly).
   Air University Library (AUL/RLX)
   Maxwell AFB, AL 36112
   (AV 875-7223)

3. <u>Research Project Abstracts.</u> A compilation of abstracts of research projects prepared by the resident school classes of the Industrial College of the Armed Forces (ICAF).
   Library
   National Defense University Library
   Fort McNair
   Washington, D. C. 20319

AFTER ACTION REPORTS
1. After Action Reports for Armored Units in WWII.
   U. S. Army Armor School Library
   Bldg. 2369
   Fort Knox, KY 40121
   (AV 464-8330)

ARCHIVES
1. Archives and General Collection in the Fields of Army Aviation and Military Aviation.
   Aviation Training Library
   P. O. Drawer O
   Fort Rucker, AL 36362

2. Archives of all Electronics Command (Signal C'rps) Literature Dating Back to the Early 1900's.
   Tech Library, ECOM Office Bldg.
   U. S. Army Electronics Command
   Fort Monmouth, NJ 07703

3. Archives, Unit Histories (Especially Field Artillery), Obsolete Military Manuals, Lessons Learned, and After Action Reports.
   Mr. Les Miller
   Morris Swett Library
   U. S. Army Field Artillery School
   Fort Sill, OK 73503
   (AV 639-4477, 2982, or 4525)

ARCHIVES   4. Archives, Unit Histories, Personal Papers, and Obsolete
Military Manuals.
         Ms. Joyce Eakin
         U. S. Army Military History Institute
         Carlisle Barracks, PA   17013

                      5. Historical Material on the Mississippi River.
         Tech Library
       o   USAE Lower Mississippi Valley Division
         P. O. Box 80
         Vicksburg, MS   39180

ARMY AVIATION   1. Archives and General Collection in the Fields of Army
Aviation and Military Aviation.
         Aviation Training Library
         P. O. Drawer O
         Fort Rucker, AL   36362

AUTOMATION   1. Acquisition and Implementation of Information Data Banks.
         Mr. Jim Greenhalgh
         Chemical Systems Lab Library
         Edgewood Arsenal
         Aberdeen Proving Ground, MD   21005

                      2. Creation of Automated Serials Systems.
         Same as above.

                      3. OCLC Implementation.
         Mrs. Ruth Hodge
         U. S. Army War College Library
         Carlisle Barracks, PA   17103
           (AV 242-3860)

BIBLIOGRAPHY   1. <u>Military Casualty and Statistical Data Associated with Wars,
a Two-Part Bibliography.</u>
         Lester Miller, Jr.
         Morris Swett Library
         U. S. Army Field Artillery School
         Fort Sill, OK   73503
           (AV 639-4477, 2982, or 4525)

BIOGRAPHY   1. Biography File, Primarily of Flag and General Affairs.
         Ms Lois Leach
         Armed Forces Staff College Library
         7800 Hampton Blvd.
         Norfolk, VA   23511

BOOK REVIEWS   1. Index to Book Reviews of Interest to the Military.
         Same as above.

116

CATALOGING	1.	Library of Congress "U" Schedule and Subject Headings Expansion.
		Mrs. Martha Relph
		Morris Swett Library
		U. S. Army Field Artillery School
		Fort Sill, OK 73503
		(AV 639-4525)

2. OCLC Implementation
   Mrs. Ruth Hodge
   U. S. Army War College Library
   Carlisle Barracks, PA 17103
   (AV 242-3860)

CIVIL WAR   1. Civil War Subject Specialist
   Dr. Richard Sommers
   Archives Section
   Military History Institute
   Carlisle Barracks, PA 17103
   (AV 242-3601)

2. Special Collection concerning Abraham Lincoln, the Civil War, and Early Reconstruction.
   Ms Cynthia Miller
   The War Library and Museum of the Military
   Order of the Loyal Legion of the United States
   1805 Pine Street
   Philadelphia, PA 19103

COLD REGIONS   1. Special Collections Pertaining to Operations in Cold Regions.
   Library (STECR-TD-Library)
   Cold Regions Test Center
   APO Seattle, WA 98733

COMMUNICATIONS 1. Archives of all Electronics Command (Signal Corps) Literature Dating Back to the Early 1900's.
   Tech Library, ECOM Office Bldg.
   U. S. Army Electronics Command
   Fort Monmouth, NJ 07703

2. Joint Electronic Type Designation System (JETDS) Literature.
   Mr. Paul A. Tolovi
   Defense Communications Agency
   Technical Library, Code 205
   Washington, D. C. 20305
   (AV 222-2244, and 2468)

CONGRESS 1. Information on Documents from the House of Representatives.
House Documents Room
U. S. Capitol Bldg.
Washington, D. C. 20515
(202) 225-3456

DATA BANKS 1. Acquisition and Implementation of Information Data Banks.
Mr. Jim Greenhalgh
Chemical Systems Lab Library
Edgewood Arsenal
Aberdeen Proving Ground, MD 21005

2. Creation of Automated Serials Systems.
Same as above.

3. Government-Industry Data Exchange Program (GIDEP)
Ms Roselyn Phillips
Tooele Army Depot (SDSTE-QAC)
Tooele, UT 84074
(AV 790-2644 or (801) 833-2644)

DOCUMENTS 1. Information on Documents from the House of Representatives
House Documents Room
U. S. Capitol Bldg.
Washington, D. C. 20515
(202)-225-3456

ELECTRONICS 1. Archives of all Electronics Command (Signal Corps) Literature
Dating Back to the Early 1900's.
Tech Library, ECOM Office Bldg.
U. S. Army Electronics Command
Fort Monmouth, NJ 07703

2. Joint Electronic Type Designation System (JETDS) Literature.
Mr. Paul A. Tolovi
Defense Communications Agency
Technical Library, Code 205
Washington, D. C. 20305
(AV 222-2244 or 2468)

INDEXES 1. Air University Library Index to Military Periodicals (AULIMP)
(Quarterly)
Air University Library
Maxwell AFB, AL 36112
(AV 875-2347)

INDEXES 2. Guide to Selected Student Research Elements, 1971-1974 plus
1975 NRI. A listing of selected papers prepared at the USAWC
to include a Subject Index.
Library
U. S. Army War College
Carlisle Barracks, PA 17103

3.

3. Index to Book Reviews of Interest to the Military.
    Ms Lois Leach
    Armed Forces Staff College Library
    7800 Hampton Blvd.
    Norfolk, VA 23511

4. Index to the Field Artillery Journal, Author and Subject
    Index, January 1940-December 1976, Volumes 30-44.
    Mr. Lester Miller, Jr.
    Morris Swett Library
    U. S. Army Field Artillery School
    Fort Sill, OK 73503
        (AV 639-4477, 2982, or 4525)

5. Index to the Field Artilleryman (Artillery Trends),
    1957-1972...Numbers 1-50.
    Same as above.

6. Management Information System for "Lessons Learned,"
    pertaining to Deficiencies or Improvements concerning sub-
    systems, Materials, Processes, or Procedures which impact
    on systems being acquired.
    Ms Jeanne Zekowski
    Library, Air Force Acquisition
    Logistics Division
    Wright-Patterson AFB, OH 45433
        (AV 785-3222 or 3578)

7. Periodical Index covering every periodical title received,
    1948-1970, at the National War College. Arrangement by
    Author, Subject, and Title. Foreign Policy of the United States
    is a special area.
    Mr. Thomas Russell
    National Defense University Library
    Fort McNair
    Washington, D. C. 20319

8. Reference Index File to Topics of Military, Political, and
    International Interest appearing in periodicals. Also
    subject headings used.
    Ms Lois Leach
    Armed Forces Staff College Library
    7800 Hampton Blvd.
    Norfolk, VA 23511

9. Retrospective Periodical Index File (Approximate Dates 1860-1950)
    Mr. Les Miller
    Morris Swett Library
    U. S. Army Field Artillery School
    Fort Sill, OK 73503
        (AV 639-4525, 4477, or 2982)

INTELLIGENCE   1. Defense Intelligence System Thesaurus.
                         Mrs. Pauline Wood
                         Defense Intelligence Agency Library
                         Central Reference Section
                         Washington, D. C. 20301
                           (AV 222-5575)

LESSONS LEARNED 1. Archives, Unit Histories (Especially Field Artillery),
                     Obsolete Military Manuals, Lessons Learned, and After
                     Action Reports.
                         Mr. Les Miller
                         Morris Swett Library
                         U. S. Army Field Artillery School
                         Fort Sill, OK 73503
                           (AV 639-4477, 2982, or 4525)

                 2. Government-Industry Data Exchange Program (GIDEP).
                         Ms Roselyn Phillips
                         Tooele Army Depot (SDSTE-QAC)
                         Tooele, UT 84074
                           (AV 790-2644 or (801) 833-2644)

                 3. Management Information System for "Lessons Learned," per-
                     taining to Deficiencies or Improvements concerning Subsystems,
                     Materials, Processes, or Procedures which impact on systems
                     being acquired.
                         Ms Jeanne Zekowski
                         Library, Air Force Acquisition
                         Logistics Division
                         Wright-Patterson AFB, OH 45433
                           (AV 785-3222, or 3578)

LINCOLN   1. Special Collection concerning Abraham Lincoln, the Civil
                     War and Early Reconstruction.
                         Ms Cynthia Miller
                         The War Library and Museum of the Military Order of
                         the Loyal Legion of the United States
                         1805 Pine Street
                         Philadelphia, PA 19103

LOGISTICS   1. Government-Industry Data Exchange Program.
                         Ms Roselyn Phillips
                         Tooele Army Depot (SDSTE-QAC)
                         Tooele, UT 84074
                           (AV 790-2644 or (801) 833-2644)

2. Management Information System for "Lessons Learned," pertaining to Deficiencies or Improvements concerning Subsystems, Materials, Processes, or Procedures which impact on systems being acquired.

Ms Jeanne Zekowski
Library, Air Force Acquisition
Logistics Division
Wright-Patterson AFB, OH 45433
(AV 785-3222 or 3578)

MANAGEMENT
INFORMATION

1. Management Information Systems for "Lessons Learned," pertaining to Deficiencies or Improvements concerning Subsystems, Materials, Processes, or Procedures which impact on systems being acquired.

Same as above.

MANUALS

1. Archives, Unit Histories (Especially Field Artillery), Obsolete Military Manuals, Lessons Learned, and After Action Reports.

Mr. Les Miller
Morris Swett Library
U. S. Army Field Artillery School
Fort Sill, CK 73503
(AV 639-4477, 2982, or 4525)

MANUALS

2. Archives, Unit Histories, Personal Papers, and Obsolete Military Manuals.

Ms. Joyce Eakin
U. S. Army Military History Institute
Carlisle Barracks, PA 17013

MAPS

1. DOD Map Support.

Defense Mapping Agency
Attn: DDCP
6500 Brookes Lane
Washington, D. C. 20319

MICROGRAPHICS

1. Micrographics - DOD Standards.

Commander Kane
RDS-3
Defense Intelligence Agency
Washington, D. C. 20301
(AV 222-6677)

2. Micrographics Implementation

Mr. James Byrn
Administration Librarian
HQS TRADOC (ATAG-MSD)
Fort Monroe, VA
(AV 680-3017)

MILITARY AVIATION   1. Archives and General Collection in the Fields of Army
Aviation and Military Aviation.
      Aviation Training Library
      P. O. Drawer O
      Fort Rucker, AL 36362

               2. Military Aviation
      Ms Nina Jacobs
      Base Library
      Travis AFB, CA 94535
        (AV 837-5254)

MILITARY JUSTICE   1. Consolidated Collection concerning Military Justice to
include all service regulations, decisions, and holdings
of all District Courts, the U. S. Court of Military
Justice, and Decisions and Holdings of the Courts of
Military Review for all services.
      Ms Barbara Goff
      Public Law Education Institute
      Dupont Circle Bldg, Suite 610
      1346 Conn. Ave., N. W.
      Washington, D. C. 20036
        (202) 296-7590

NOMENCLATURE   1. Joint Electronic Type Designation System (JETDS)
Literature.
      Mr. Paul A. Tolovi
      Defense Communications Agency
      Technical Library, Code 205
      Washington, D. C. 20305
        (AV 222-2244 or 2468)

OBSOLETE MANUALS   1. Archives of all Electronics Command (Signal Corps)
Literature Dating Back to the Early 1900's.
      Tech Library, ECOM Office Bldg.
      U.S. Army Electronics Command
      Fort Monmouth, NJ 07703

               2. Archives, Unit Histories (Especially Field Artillery),
Obsolete Military Manuals, Lessons Learned, and After
Action Reports.
      Mr. Les Miller
      Morris Swett Library
      U. S. Army Field Artillery School
      Fort Sill, OK 73503
        (AV 639-4477, 2982, or 4525)

               3. Archives, Unit Histories, Personal Papers, and
Obsolete Military Manuals.
      Ms. Joyce Eakin
      U. S. Army Military History Institute
      Carlisle Barracks, PA 17013

OCLC

1. OCLC Implementation.
   Mrs. Ruth Hodge
   U. S. Army War College Library
   Carlisle Barracks, PA 17013
   (AV 242-3860)

PERIODICALS

1. Air University Library Index to Military Periodicals
   (AULIMP) (Quarterly).
   Air University Library
   Maxwell AFB, AL 36112
   (AV 875-2347)

2. Creation of Automated Serials Systems.
   Mr. Jim Greenhalgh
   Chemical Systems Lab Library
   Edgewood Arsenal
   Aberdeen Proving Ground, MD 21005
   (AV 584-2822)

3. European Scientific Notes (ESN). Monthly Newsletter
   devoted to current scientific actions of UK and
   European Academic and Government Sponsored Establishments.
   Mrs. Victoris Hewitson, Librarian
   Office of U. S. Naval Research
   Branch Office
   London, Box 39
   FPO New York, 09510

4. Index to the Field Artillery Journal, Author and Subject
   Index, January 1940 through December 1976, Volumes
   30 through 44.
   Mr. Lester Miller, Jr.
   Morris Swett Library
   U. S. Army Field Artillery School
   Fort Sill, OK 73503
   (AV 639-4477, 2982, or 4525)

5. Index to the Field Artilleryman (Artillery Trends),
   1957-1972...Numbers 1 through 50.
   Same as above.

6. Periodical Index covering every periodical title received,
   1948-1970, at the National War College. Arrangement by
   Author, Subject, and Title. Foreign Policy of U. S. is a
   special area.
   Mr. Thomas Russell
   National Defense University Library
   Fort McNair
   Washington, D. C. 20319

7. Retrospective Periodical Index File (Approximate Dates 1860 through 1950).
    Mr. Les Miller
    Morris Swett Library.
    U. S. Army Field Artillery School
    Fort Sill, OK 73503
      (AV 639-4525, 4477, or 2982)

PERSONAL PAPERS

1. Personal Papers of Assorted Persons Associated with the U. S. Military.
    Mr. Thomas Russell
    National Defense University Library
    Fort McNair
    Washington, D. C. 20319

2. Personal Papers of General Bruce C. Clarke.
    U. S. Army Engr School Library and LRC
    Thayer Hall, Bldg 270
    Fort Belvoir, VA 22060

PROCUREMENT

1. Government-Industry Data Exchange Program (GIDEP)
    Ms Roselyn Phillips
    Tooele Army Depot (SDSTE-QAC)
    Tooele, UT 84074
      (AV 790-2644 or (801) 833-2644)

2. Management Information System for "Lessons Learned," pertaining to Deficiencies or Improvements concerning Subsystems, Materials, Processes, or Procedures which impact on systems being acquired.
    Ms Jeanne Zekowski
    Library, Air Force Acquisition
    Logistics Division
    Wright-Patterson AFB, OH 45433
      (AV 785-3222 or 3578)

R&D

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    Tooele Army Depot (SDSTE-QAC)
    Tooele, UT 84074
      (AV 790-2644 or (801) 833-2644)

RECONSTRUCTION

1. Special Collection concerning Abraham Lincoln, the Civil War, and Early Reconstruction.
    Ms Cynthia Miller
    The War Library and Museum of the Military
    Order of the Loyal Legion of the United States
    1805 Pine Street
    Philadelphia, PA 19103

RIVERS	1.	Historical Material on the Mississippi River. Tech Library USAE Lower Mississippi Valley Division P. O. Box 80 Vicksburg, MS 39180
	2.	River Basin Studies. U. S. Army Engr District, St. Louis 210 N. 12th St. District Library Room 944 St. Louis, MO 63101
SCIENCE	1.	European Scientific Notes (ESN). Monthly newsletter devoted to current scientific actions of UK and European Academic and Government Sponsored Establishments. Mrs. Victoria Hewitson, Librarian Office of U. S. Naval Research Branch Office London, Box 39 FPO New York 09510
SERIALS	1.	Creation of Automated Serials Systems. Mr. Jim Greenhalgh Chemical Systems Lab Library Edgewood Arsenal Aberdeen Proving Ground, MD 21005 (AV 584-2822)
STANDARDS	1.	Micrographics - DOD Standards. Commander Kane RDS-3 Defense Intelligence Agency Washington, D. C. 20301 (AV 222-6677)
STATISTICS	1.	Military Casualty and Statistical Data Associated with Wars, a Two-Part Bibliography. Lester Miller, Jr. Morris Swett Library U. S. Army Field Artillery School Fort Sill, OK 73503 (AV 639-4477, 2982, or 4525)
SUBJECT HEADINGS	1.	LC "U" Schedule and Subject Headings Expansion. Mrs. Martha Relph Same address as above.

2. Reference Index File to Topics of Military, Political, and International Interest appearing in periodicals. Also subject headings used.

Ms Lois Leach
Armed Forces Staff College Library
7800 Hampton Blvd.
Norfolk, VA 23511

TECHNICAL REPORTS   1. Retrieval System for Technical Reports.

Ms Kathy Wright
Naval Ocean Systems Center Tech.
Library
Code 4473
San Diego, CA 92152
(AV 933-6171 or (714) 225-6171)

TEST AND EVALUATION 1. Government-Industry Data Exchange Program (GIDEP).

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2. Special Collection Pertaining to Operations in cold regions.

Library (STECR-TD-Library)
Cold Regions Test Center
APO Seattle, WA 98733

THESAURUS   1. Defense Intelligence System Thesaurus

Mrs. Pauline Wood
Defense Intelligence Agency Library
Central Reference Section
Washington, D. C. 20301
(AV 222-5575)

UNIT HISTORIES   1. Archives, Unit Histories (Especially Field Artillery), Obsolete Military Manuals, Lessons Learned, and After Action Reports.

Mr. Les Miller
Morris Swett Library
U. S. Army Field Artillery School
Fort Sill, OK 73503
(AV 639-4477; 2982, or 4525)

2. Archives, Unit Histories, Personal Papers, and Obsolete Military Manuals.

Ms. Joyce Eakin
U. S. Army Military History Institute
Carlisle Barracks, PA 17013

WEAPONS   1. Foreign Weapon Information

Foreign Science and Technology Center
Attn: AMX-AMST-IS One
220 7th St., N.E.
Charlottesville, VA 22901   (AV 274-7513)

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Air Force Weapons Laboratory
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III Corps & Fort Hood
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AV: 737-6011

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